

CORNELL UNIVERSITY
ANNOUNCEMENTS

APRIL 12, 1963

ARTS AND SCIENCES
1963-1964

COLLEGE OF ARTS AND SCIENCES

ACADEMIC CALENDAR (Tentative)

1963-1964

Sept. 21	...S...	Freshman Orientation	Sept. 19	...S
Sept. 23	...M...	Registration, new students	Sept. 21	...M
Sept. 24	...T...	Registration, old students	Sept. 22	...T
Sept. 25	...W...	Instruction begins, 1 p.m.	Sept. 23	...W
Nov. 13	...W...	Midterm grades due	Nov. 11	...W
		Thanksgiving recess:		
Nov. 27	...W...	Instruction suspended, 12:50 p.m.	Nov. 25	...W
Dec. 2	...M...	Instruction resumed, 8 a.m.	Nov. 30	...M
		Christmas recess:		
Dec. 21	...S...	Instruction suspended, 12:50 p.m.	Dec. 19	...S
Jan. 6	...M...	Instruction resumed, 8 a.m.	Jan. 4	...M
Jan. 25	...S...	First-term instruction ends	Jan. 23	...S
Jan. 27	...M...	Second-term registration, old students	Jan. 25	...M
Jan. 28	...T...	Examinations begin	Jan. 26	...T
Feb. 5	...W...	Examinations end	Feb. 3	...W
Feb. 6	...Th...	Midyear recess	Feb. 4	...Th
Feb. 7	...F...	Midyear recess	Feb. 5	...F
Feb. 8	...S...	Registration, new students	Feb. 6	...S
Feb. 10	...M...	Second-term instruction begins	Feb. 8	...M
Mar. 27	...F...	Midterm grades due (at 12 noon)	Mar. 26	...F
		Spring recess:		
Mar. 28	...S...	Instruction suspended, 12:50 p.m.	Mar. 27	...S
Apr. 6	...M...	Instruction resumed, 8 a.m.	Apr. 5	...M
May 30	...S...	Second-term instruction ends	May 29	...S
June 1	...M...	Examinations begin	May 31	...M
June 9	...T...	Examinations end	June 8	...T
June 15	...M...	Commencement Day	June 14	...M

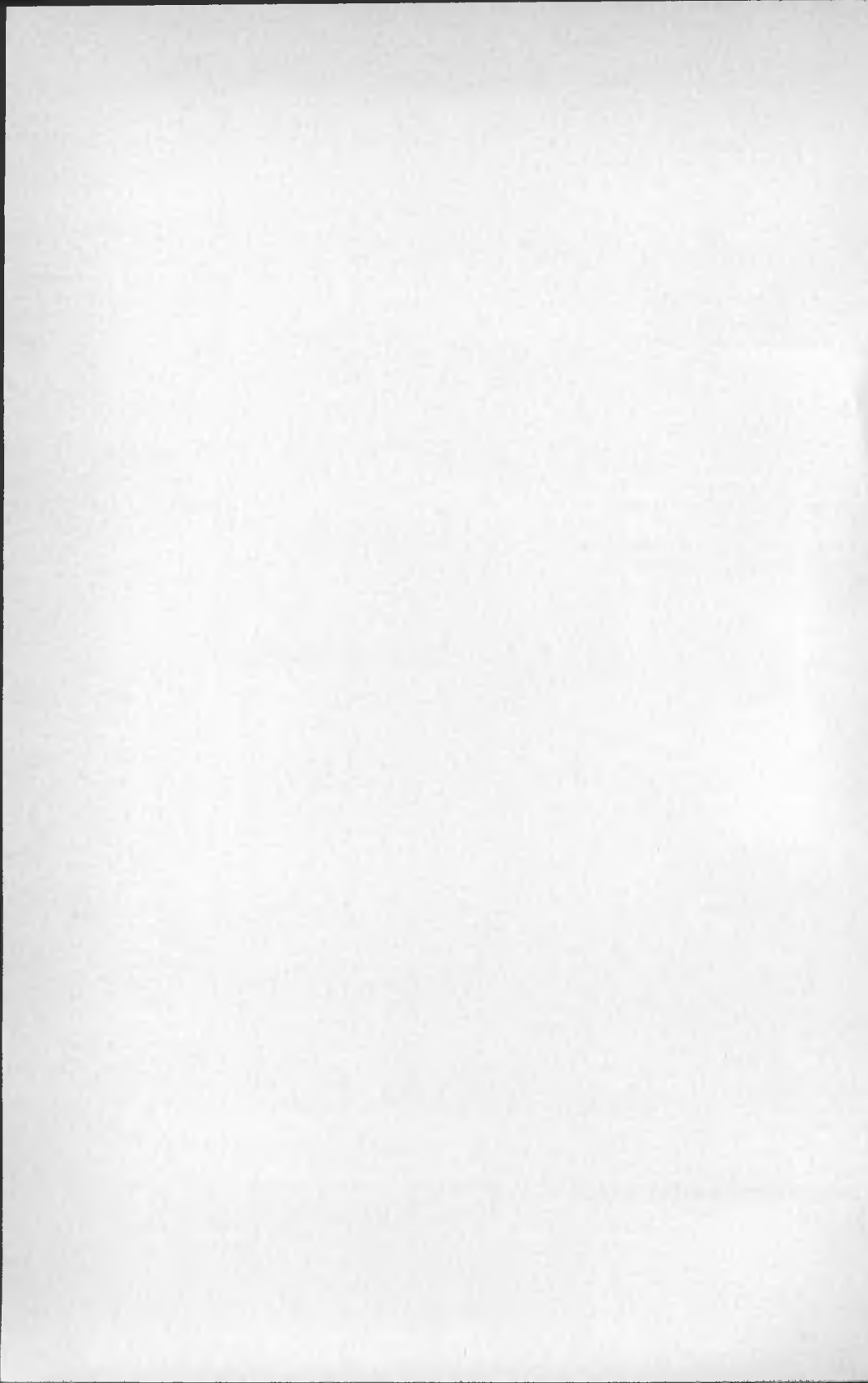
1964-1965

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CORNELL UNIVERSITY

**COLLEGE OF
ARTS AND SCIENCES**

1963-1964



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FACULTY*

ACADEMIC YEAR OF 1963-1964

DEANE W. MALOTT, President of the University (1951-1963)
JAMES A. PERKINS, President of the University (1963-...)
WILLIAM REA KEAST, Dean of the College of Arts and Sciences
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JOHN MAXWELL ANDERSON, Ph.D., Professor of Zoology
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KARL BERKELMAN, Ph.D., Associate Professor of Physics
SYLVESTER E. BERKI, M.A., Acting Assistant Professor of Economics
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ISRAEL BERSTEIN, Ph.D., Visiting Associate Professor of Mathematics
HANS ALBRECHT BETHE, Ph.D., John Wendell Anderson Professor of Physics³
KNIGHT BIGGERSTAFF, Ph.D., Professor of Chinese History
JONATHAN PEALE BISHOP, Ph.D., Assistant Professor of English
MORRIS GILBERT BISHOP, Ph.D., Kappa Alpha Professor of Romance Literature,
Emeritus

* Numbers following names indicate: (1) leave of absence, fall term, 1963-1964; (2) leave of absence, spring term, 1963-1964; (3) leave of absence, 1963-1964.

This listing of the faculty of the College of Arts and Sciences does not necessarily include all appointments or resignations for 1963-1964.

FACULTY 1

VII. HJALMUR T. BJARNER, M.A., Lecturer in German Linguistics
 MAX BLACK, Ph.D., D.Lit., Susan Linn Sage Professor of Philosophy
 ERIC ALBERT BLACKALL, M.A., Dr.Phil., Litt.D., Professor of German Literature
 JEAN FRANTZ BLACKALL, Ph.D., Assistant Professor of English
 ALFRED THEODORE BLOMQUIST, Ph.D., Professor of Chemistry
 ALLAN DAVID BLOOM, Ph.D., Assistant Professor of Government
 ARTHUR L. BLOOM, Ph.D., Assistant Professor of Geology
 NICHOLAS C. BODMAN, Ph.D., Associate Professor of Linguistics
 ALBERT WILHELM BOESCHE, Ph.D., Professor of German, Emeritus
 ACHIM BONAWITZ, Ph.D., Assistant Professor of German Literature
 ROBERT ALLEN BONIC, Ph.D., Assistant Professor of Mathematics
 SAMUEL LATIMER BOOTHROYD, M.S., Professor of Astronomy, Emeritus
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 LEIF BRAATEN, Ph.D., Lecturer in Psychology
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 HARRY CAPLAN, Ph.D., Goldwin Smith Professor of the Classical Languages and
 Literatures¹
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 PATRICIA CARDEN, M.A., Instructor in Russian Literature
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 YVONNE CHOQUET-BRUHAT, D.Sc., Visiting Professor of Mathematics
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 LAMONT C. COLE, Ph.D., Professor of Zoology¹
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 Emeritus
 DALE RAYMOND CORSON, Ph.D., Professor of Physics
 ROBERT MILO COTTS, Ph.D., Associate Professor of Physics³
 J. MILTON COWAN, Ph.D., Professor of Linguistics
 MALCOLM COWLEY, A.B., Visiting Ernest I. White Professor of American Studies
 GEORGE FERRIS CRONKHITE, Ph.D., Lecturer in English
 K. PATRICIA CROSS, Ph.D., Lecturer in Psychology

2 FACULTY

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4 FACULTY

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6 FACULTY

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ISAAC RABINOWITZ, Ph.D., Professor of Biblical and Hebrew Studies
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OLGA SAMILOV, M.A., Instructor in Russian
HAROLD E. SAMUEL, Ph.D., Lecturer in Music
THOMAS MAYNARD SCHEIDEL, Ph.D., Assistant Professor of Speech and Drama
HAROLD ABRAHAM SCHERAGA, Ph.D., Sc.D., Professor of Chemistry
RICHARD THOMAS SELDEN, Ph.D., Professor of Economics
ALAIN SEZNEC, Diplôme d'études supérieures, Associate Professor of Romance Literature
HAROLD SHADICK, M.A., Professor of Chinese Literature
LAURISTON SHARP, Ph.D., Professor of Anthropology³
ROBERT WILLIAM SHAW, Ph.D., Professor of Astronomy
WILLIAM DAVID SHAW, M.A., Instructor in English
SYDNEY S. SHOEMAKER, Ph.D., Assistant Professor of Philosophy
FRANK NOEL SIBLEY, M.A., Associate Professor of Philosophy
MICHELL JOSEPH SIENKO, Ph.D., Professor of Chemistry³
ROBERT H. SILSBEE, Ph.D., Associate Professor of Physics
ALBERT SILVERMAN, Ph.D., Professor of Physics
WALTER MICHAEL SIMON, Ph.D., Professor of Modern European History
GEORGE WILLIAM SKINNER, Ph.D., Professor of Anthropology
WALTER J. SLATOFF, Ph.D., Associate Professor of English
HAROLD ROBERT SMART, Ph.D., Professor of Philosophy, Emeritus
HAL HAMPSON SMITH, Ph.D., Assistant Professor of English
PATRICIA CAIN SMITH, Ph.D., Professor of Psychology
ROBERT J. SMITH, Ph.D., Professor of Anthropology
WEBSTER SMITH, Ph.D., Assistant Professor of the History of Art
THOMAS ANDREW SOKOL, M.A., Associate Professor of Music¹
DONALD F. SOLÁ, Ph.D., Associate Professor of Linguistics
ALAN ROBERT SOLOMON, Ph.D., Associate Professor of the History of Art

- RICHARD R. K. SORABJI, B.Phil., Assistant Professor of Philosophy
 FRANK L. SPITZER, Ph.D., Professor of Mathematics
 ROBERT LAMB SPROULL, Ph.D., Professor of Physics
 WALTER HUTCHINSON STAINTON, Ph.D., Professor of Speech and Drama
 GEORGE J. STALLER, Ph.D., Assistant Professor of Economics
 PETER C. STEIN, Ph.D., Associate Professor of Physics
 BERNT PETTER STIGUM, Ph.D., Assistant Professor of Economics
 TAYLOR WAYNE STOEHR, Ph.D., Assistant Professor of English
 CHARLES JOEL STONE, Ph.D., Assistant Professor of Mathematics
 GORDON FRANKLIN STREIB, Ph.D., Professor of Sociology
 JOSEPH MAYONE STYCOS, Ph.D., Professor of Sociology ²
 ROBERT STUART SWARD, M.A., Instructor in English
 RICHARD MICHAEL TALMAN, M.A., Assistant Professor of Physics
 HAROLD WILLIAM THOMPSON, Ph.D., D.Litt., L.H.D., Mus.D., Goldwin Smith
 Professor of English Literature, Emeritus
 WAYNE EDWIN THOMPSON, Ph.D., Associate Professor of Sociology
 BRIAN TIERNEY, Ph.D., Professor of Medieval History
 DIRAN HAGOPOS TOMBOULIAN, Ph.D., Professor of Physics
 BARBARA TROXELL, M.S., Assistant Professor of Music
 VICTOR W. TURNER, Ph.D., Professor of Anthropology
 JAMES HARVEY TURNURE, M.F.A., Assistant Professor of the History of Art
 JOHN REUBEN WAY VALLENTYNE, Ph.D., Professor of Zoology
 ZENO VENDLER, Ph.D., Assistant Professor of Philosophy ³
 OSKAR DIEDRICH VON ENGELN, Ph.D., Professor of Geology, Emeritus
 FREDERICK OSWIN WAAGE, Ph.D., Professor of the History of Art and Archaeology
 STEPHEN WAINGER, Ph.D., Instructor in Mathematics
 ROBERT JOHN WALKER, Ph.D., Professor of Mathematics
 BARBARA E. WARD, M.A., Visiting Professor of Anthropology
 HARRY PORTER WELD, Ph.D., Professor of Psychology, Emeritus
 JOHN WEST WELLS, Ph.D., Professor of Geology
 HERBERT AUGUST WICHELNS, Ph.D., Professor of Speech and Drama, Emeritus
 BENJAMIN WIDOM, Ph.D., Professor of Chemistry
 HAROLD WIDOM, Ph.D., Associate Professor of Mathematics
 CHARLES F. WILCOX, Jr., Ph.D., Associate Professor of Chemistry
 WALTER FRANCIS WILCOX, Ph.D., LL.D., Professor of Economics and Statistics,
 Emeritus
 L. PEARCE WILLIAMS, Ph.D., Associate Professor of the History of Science
 ROBIN MURPHY WILLIAMS, Jr., Ph.D., Professor of Sociology
 JOHN ALEXANDER WILLIAMSON, M.A., Instructor in Mathematics
 JOHN FLETCHER WILSON, Ph.D., Associate Professor of Speech and Drama
 KENNETH GEDDES WILSON, Ph.D., Assistant Professor of Physics
 ROBERT RATHBUN WILSON, Ph.D., Professor of Physics
 WILLIAM ABELL WIMSATT, Ph.D., Professor of Zoology
 ARTHUR P. WOLF, B.A., Assistant Professor of Anthropology and Psychology
 JACOB WOLFOWITZ, Ph.D., Professor of Mathematics
 WILLIAM MOONEY WOODWARD, Ph.D., Professor of Physics
 ALBERT HAZEN WRIGHT, Ph.D., Professor of Zoology, Emeritus
 MARTIE WING YOUNG, Ph.D., Assistant Professor of the History of Art
 ROBERT RAMON ZIMMERMAN, Ph.D., Assistant Professor of Psychology
 JEROLD J. ZUCKERMAN, Ph.D., Assistant Professor of Chemistry
 PAUL ZUMTHOR, Doctor ès lettres, Frederic J. Whiton Visiting Professor of Romance
 Literature

COLLEGE OF ARTS AND SCIENCES

THE COLLEGE of Arts and Sciences is a liberal arts college. Its essential purpose is the one that has always motivated the teaching of the liberal arts; that is, to permit students to acquire the arts that make a free man, in the sense that a man is free only when he understands his own nature and that of the world. Though such understanding sometimes requires technical skills and always requires intellectual ones, it consists in something more than either. In its fullest sense it is an understanding that is indistinguishable from a way of living.

To this end the College offers a carefully designed and, in some ways, unique program of studies in languages and literatures, in philosophy, music, and the fine arts, and in mathematics, the natural sciences, the social sciences, and history. The range and diversity of its offerings in these subjects are unsurpassed anywhere. The student's program is so arranged that, for the first two years, he studies in some depth a number of these subjects. In this underclass work he must include at least a year's work in in one of the natural sciences, in one of the social sciences, and in one of the humanities, in addition to achieving competence in the use of the English language and in the use of at least one foreign language.

In his upperclass years, he must carry further his work in two or three of these areas of knowledge and must acquire a thorough knowledge of one of them, his major subject. For this purpose the student's program is reduced during the upperclass years from five to four courses, in order that he may work more independently in subjects in which he has advanced to the point where he may benefit from working on his own. For such independent work Cornell's great libraries provide every opportunity.

Though this program of studies has been constructed primarily to assure the successful achievement of a liberal education itself, it is also, according to the graduate schools of law, medicine, and business administration, the best preparation for professional study.

Because the faculty believes a student ought to complete his education as rapidly as is compatible with his doing it well, the College will grant him, at admission, advanced standing in any freshman subject in which he can demonstrate competence. A properly prepared student may thus gain college credit for as much as a full year of work. If he does so, he will begin his career at Cornell as a sophomore and can complete his work for the degree in three years.

REQUIREMENTS FOR ADMISSION

An applicant for admission to the freshman class in the College of Arts and Sciences must have completed a secondary school course giving satisfactory preparation for the work of the College. Sixteen units of entrance credit are required, representing at least four years' work in a preparatory or high school. The sixteen units must include four years of English, three years of preparatory mathematics, and three of a foreign language, ancient or modern, together with

a satisfactory score on the College Entrance Examination Board Achievement Test in the language. Candidates who have had less than three years of preparation in a foreign language but who make a satisfactory score on the Achievement Test will meet the requirement. The remaining units should be chosen from laboratory science (at least one unit of biology, chemistry, or physics), social studies (at least one unit of history, government, or geography), and further work in mathematics and foreign language. Wherever possible, these minimum sixteen units should be supplemented by additional courses in similar academic subjects.

As a guide to prospective students and to guidance counselors, the following program of college preparatory work is recommended: English, four units, with emphasis on comprehension in reading and on clarity and facility in expository writing; mathematics, sufficient to enable the student to begin calculus during his first year in college should he wish to do so; foreign languages, ancient or modern, taken every year, with the objective of achieving a really useful knowledge (four units or more) of one language, and some knowledge (at least two units) of a second; social studies (at least one unit); laboratory science (at least one unit—if more than one unit is taken, each unit ordinarily should be taken in a different science). Where the opportunity exists, students are urged to begin the study of a foreign language in the seventh grade or earlier. The most generally useful modern languages for advanced study are French and German. For work in the sciences, Russian is becoming increasingly important; for work in the humanities, the classical languages are of great importance. Students considering a science major in college are advised that thorough preparation in mathematics will be more valuable than extensive concentration in a single science.

Each candidate for admission is required to take, in December or January, the College Board Scholastic Aptitude Test, the English Composition Test, and the Achievement Test in at least one language, and to request the Board to report the results to the Office of Admissions, Cornell University. A candidate should also keep in mind the further language requirement which he must meet by the end of his sophomore year in college (see page 13). If he has had two or more years of a second foreign language in school and wishes to use that language toward fulfilling this requirement in college, he should also take the Achievement Test in that second language, though he need not do so as early as December or January. Acceptable scores on the Achievement Tests in modern foreign languages will be set to correspond with the actual amount of instruction received at the time the tests are taken and to measure the achievement after one and a half years, two and a half years, or three years of instruction.

An applicant for admission who has completed a year or more of work in another institution of recognized collegiate rank will be expected to have had preparatory work equivalent to that prescribed for freshmen. In addition, his progress in meeting the requirements in courses and hours as listed for underclassmen and admission to upperclass standing will be carefully examined. Action on completed applications for transfer will be taken about May 1.

Not all applicants can be admitted. Those that seem best qualified are selected after a comparative study not only of the formal preparation, but also of evidence relating to each applicant's character, seriousness of purpose, and fitness to undertake the work of the College. Only a relatively small number of transfer students can be accepted.

Application forms may be obtained from the Office of Admissions, Day Hall, and all communications concerning admissions should be addressed there.

Accepted applicants should read carefully the sections on health requirements, health services, and medical care in the *Announcement of General Information*. Some health requirements may be met prior to entrance.

The *Announcement of General Information* should be consulted for other matters of general interest such as details on entrance requirements, living expenses, tuition and fees, scholarships, loans, part-time employment, motor vehicle regulations, and student conduct. The various Announcements of Cornell may be obtained by writing to the Announcements Office, Day Hall, Ithaca, New York.

ADVANCED PLACEMENT

Advanced placement and advanced standing credit toward the degree of Bachelor of Arts may be achieved in a variety of subjects and in a variety of ways.

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

In modern foreign languages, a student showing superior attainment on the College Board language achievement test may be exempted from three or six hours of the requirement of advanced work after qualification and receive three or six hours of advanced standing credit.

In freshman English, advanced placement and advanced standing credit may be awarded to a freshman who has a distinguished record in an advanced program in secondary school and who has received a satisfactory score on the College Board Advanced Placement Examination in English. A student who has not taken an advanced placement course in secondary school may be considered for advanced placement and credit on the basis of his school grades, his scores on the tests normally required for admission, and his score on the Advanced Placement Examination if he has taken it.

Advanced placement, generally without credit, is possible in the literature courses in modern foreign languages on the basis of high attainment on the Advanced Placement Examination in the language and a qualifying score on the corresponding language achievement test.

More detailed information about the possibilities and procedures of advanced placement is contained in *Advanced Placement of Freshmen at Cornell University*, available from the Office of Admissions, Day Hall, or from the Secretary of the College of Arts and Sciences, Goldwin Smith Hall.

A student may use his advanced standing credit to satisfy underclass distribution requirements of the College. Advanced standing credit for a freshman is limited to 30 hours, including any credit for summer session study prior to matriculation.

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, provided that the total number does not exceed sixty hours. No more than fifteen hours may be in courses not commonly given by the College of Arts and Sciences. In order, however, to obtain the degree of Bachelor of Arts, a student must, as a candidate for that degree, have been in residence at least two years in the College of Arts and Sciences, and in that college only.

REGISTRATION IN COURSES

During a period before the opening of each term, every student will, with the aid of an adviser, prepare a program of studies. For the academic year 1963-1964, registration for the fall term will be held in the period April 22 to May 1, 1963, and registration for the spring term will be held in the period November 4 to November 13, 1963.

Every student must register in each term for at least twelve academic hours, exclusive of basic military science and physical education. The normal program for underclassmen will consist of five three-hour courses; upperclassmen will be expected to carry a program of no more than four courses consisting mainly of four-hour courses. No student may carry more than seventeen hours without special permission. In order for a student to maintain satisfactory progress toward the degree, his program must average fifteen hours a term.

Program changes will be permitted, without petition or fee, upon recommendation of the adviser, prior to July 1 for the fall term and prior to December 15 for the spring term, and again during the first week of instruction upon the payment of a \$3 fee. After the first week of instruction, a course may be canceled prior to the date for reporting midterm grades, when such cancellation is in the best interest of the student, and after a petition has been approved by the Dean. A \$3 fee may be charged. After that date, a course may be canceled for medical reasons only.

Failure to register during the announced period will be considered sufficient notice of the intention to withdraw.

Freshmen will register by mail in the summer and may expect the necessary material early in July from the Chairman of the Advisory Board for Underclassmen.

ADVISERS

During the summer each entering freshman and re-entering underclassman will be assigned to a member of the Advisory Board for Underclassmen, which has jurisdiction over freshmen and sophomores. The function of the underclass adviser is to assist the student in his choice of studies, to advise him during the term regarding his work, and to give him friendly counsel.

At the time of admission to upperclass standing, the student will be assigned an adviser in the department administering his major study. 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.

Both underclassmen and upperclassmen are expected to show initiative in planning their programs and to assume a large measure of responsibility for their progress in meeting requirements.

THE CURRICULUM

The curriculum emphasizes a progression from underclass to upperclass studies both in the organization of courses and in the method of instruction and study. The underclass years provide the opportunity for the completion of the student's general education and the satisfaction of the prerequisites for upperclass study. In the upperclass years the student concentrates on the mastery of a major division of subject matter and on deepening his understanding of other disciplines.

Admission to upperclass study will depend upon satisfying a set of specific requirements (see below) and upon the quality of the student's work. Provisions for credit at entrance and in summer session permit the student to shorten the period of study as an underclassman substantially. Upperclassmen will carry fewer courses (four courses a term) and will be expected to supplement the formal instruction in the classroom by an increased amount of directed independent study.

PROGRAM OF COURSES

Undergraduate courses are offered at four levels numbered as follows:

- 100-199 Introductory courses for freshmen and sophomores, normally carrying three hours of credit; may not be taken for credit by upperclassmen. These courses satisfy the group distribution requirements when so specified by the department. (See also the prerequisite requirement of the major.)
- 200-299 Intermediate courses primarily for underclassmen, normally carrying three hours of credit; may not be counted in satisfaction of upperclass major requirements. These courses include second courses prerequisite to the major, and general and special courses for the non-major.
- 300-399 Advanced courses primarily for juniors and seniors, normally carrying four hours of credit.
- 400-499 Courses on the senior and graduate-student level, normally carrying four hours of credit.

Underclassmen may register for upperclass courses at whatever point they are able to meet the prerequisites of such courses. Freshmen, however, will ordinarily register for 100-level courses.

UNDERCLASS REQUIREMENTS

For admission to upperclass standing, an underclassman is required to:

1. Offer sixty hours of credit of satisfactory quality, exclusive of credit in military science and physical education. These hours may include advanced standing credit and supplementary summer session study. Advanced standing credit including summer session credit is limited to thirty hours.
2. Meet the requirements in English and foreign language.
3. Complete the basic prerequisites of the major.

4. Present an acceptable plan for completing the distribution requirements. In preparation the underclassman will ordinarily complete the first set of distribution requirements as well as any prerequisite courses necessary for the satisfaction of the second set of distribution requirements as an upperclassman.
5. Be officially accepted into a major.
6. Satisfy the physical education requirement. The University requires that all physically qualified students who are candidates for a baccalaureate degree take physical education during the first four terms of residence. Material describing the course offerings will be made available to entering students by the Department of Physical Education.

DISTRIBUTION REQUIREMENTS

A. LANGUAGE

1. **ENGLISH.** English Courses 111-112, 119-120, or 213-214 must be completed. They must be begun in the first term of residence. Placement in these courses will be based on the student's secondary school record in English and on his achievement test score. Foreign students may satisfy the requirement by passing English 211-212, offered by the Division of Modern Languages.

2. **FOREIGN LANGUAGE:** A student must achieve proficiency in one language or qualification in two. This requirement may be met in either an ancient or modern foreign language. The hours required to meet the language requirement may not be used to satisfy the humanities requirement in literature.

In the ancient languages the requirement is met in Greek by completing Greek 203, in Hebrew by completing Hebrew 202. In Latin, students offering three or four years at entrance satisfy the requirement by completing Latin 112; students offering two years of Latin satisfy the requirement with Latin 109. A student is declared qualified in Latin on the basis of the College Board Achievement Test, or on his secondary school record, or by passing Latin 107.

In modern languages the requirement is satisfied by achieving proficiency in a single language or by qualifying in two from among the following: Chinese, Burmese, French, German, Hindi, Indonesian, Italian, Japanese, Russian, Spanish, Thai, and Vietnamese.

At entrance, a student's placement will be determined on the basis of the College Board Achievement Test in the language or languages in which he proposes to satisfy the requirement. If he is declared qualified (a level normally reached by completing Course 102 in that language), he may achieve proficiency by passing an additional six hours of advanced work, excluding courses in literature in translation. If he is placed in Course 112, he must pass that three-hour course and the qualifying examination and then complete six hours of advanced work in the language. If placed in Course 102, he must pass that six-hour course and the qualifying examination and then complete three hours of advanced work in the language. If a student wishes to make a fresh start in a modern foreign language, proficiency will normally require fifteen hours of course work. A student who wishes to offer two languages may satisfy the requirement by meeting the qualification standard in both languages.

Furthermore, a student of superior attainment may on entrance be exempted

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from three hours of the requirement of advanced work after qualification and receive three hours of advanced standing credit, or be exempted from six hours and receive six hours of advanced standing credit.

A student wishing to continue a modern foreign language begun in secondary school in which he has not taken a College Board Achievement Test must first take a placement examination given by the Division of Modern Languages. The examination will be given on October 30 or April 8 of the 1963-1964 academic year.

For students in course, the qualifying examination referred to above is given as the final examination in Course 102. Students passing Course 102, but failing the qualifying examination, may qualify only by repeating the examination after an approved program of preparation.

A student who enters from a foreign country and whose mother tongue is not English may satisfy the foreign language requirement by demonstrating competence in English, which shall be defined for the purpose as a modern foreign language.

B. DISTRIBUTION I

Each student must complete a six-hour sequence 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.

- | | |
|-------------------------------|------------------------------------|
| 1. <i>Mathematics</i> | Psychology |
| 2. <i>Physical Sciences</i> | Sociology |
| Astronomy | 5. <i>History</i> |
| Chemistry | 6. <i>Humanities</i> |
| Geology | Classics |
| Physics | English (excluding English 111-112 |
| 3. <i>Biological Sciences</i> | and 119-120) |
| Biology | Literature |
| Botany | Modern Foreign Literatures |
| Zoology | Philosophy |
| 4. <i>Social Sciences</i> | 7. <i>Expressive Arts</i> |
| Anthropology | History of Art |
| Economics | Music |
| Government | Speech and Drama |
| Linguistics | |

C. DISTRIBUTION II

Each student must complete before graduation fourteen hours in courses numbered 200 or above in either (a) one set of four courses in one subject or (b) two sets of closely related courses, each set in a different subject. The satisfaction of this requirement must be approved by the major adviser.

No course used to satisfy Distribution I may be counted toward the fulfillment of Distribution II. No course used to satisfy Distribution II may be in the major subject, nor may it be used in satisfaction of the major. Advanced standing credit may not be used to satisfy this requirement.

UPPERCLASS REQUIREMENTS

After admission to upperclass standing, an upperclassman shall complete four full terms at Cornell, not excluding approved courses of upperclass study elsewhere. Additionally, he shall:

1. Complete a minimum of sixty hours of upperclass study, of which no more than twelve hours may be taken outside the College. However, specified courses, satisfying requirements of the major, taken outside the College need not be counted in this twelve-hour maximum. At least fifteen of the required sixty hours must be earned in courses not given by the department supervising his major and not offered by the student in satisfaction of the major.
2. Pass three-fourths of his hours at seventy or better.
3. Complete the distribution requirements.
4. 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. The normal load per term for an upperclass student in his major is two or three courses at the 300 level or above.

CREDIT FOR SUMMER SESSION

Credit for work done in summer sessions at Cornell and elsewhere may under certain circumstances be counted toward the requirements for admission to upperclass standing. Except for summer session work taken before matriculation in the College, courses must be approved in advance for the particular purpose in mind. Courses taken before matriculation should be limited to the usual college introductory courses and will be subject to approval for advanced standing credit at the time of matriculation.

Summer session credit earned after admission to upperclass standing may not be used to reduce the residence requirement of four terms. Summer field work or other summer session study may not be included in the minimum of thirty-two hours required in the major.

No credit may be earned in a summer session of less than four weeks except by special permission; and no credit will be allowed for a course passed at less than a grade of 70, or C, or the equivalent.

Any student who undertakes summer session study without prior approval of his adviser, the department concerned, and the Dean does so without any assurance that he will receive academic credit.

LEAVES OF ABSENCE

For reasons satisfactory to the faculty, a student may be given a leave of absence for a definite or indefinite length of time. If, because of financial, family, or health reasons, a student is required to absent himself for a period of time, but with the expectation of returning, he should apply for a leave of absence. Leaves of absence for medical reasons are issued only upon the recommendation of the University Clinic. Students withdrawing permanently should request an honorable dismissal.

No credit toward graduation may be earned while on leave of absence except in a limited amount by members of the armed services.

GRADES AND SCHOLASTIC DISCIPLINE

Grades are assigned in accordance with the following schedule: passing grades, 60, 65, 70, 75, 80, 85, 90, 95, 100; failing grades, 50 and 40. 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.

The mark of *inc* will be 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. A mark of *inc* may be removed, with the consent of the Dean, and upon payment of the fee required by the University, by examination or otherwise as the department may direct. An incomplete that is not removed within one term will revert to a failing grade of fifty, unless an extension of time is granted by the Committee on Academic Records.

An underclassman failing to make satisfactory progress in grades and hours may be placed on probation or asked to leave at any time. Failure to meet the requirements for upperclass standing after four terms ordinarily will terminate the student's residence. An upperclassman failing to pass three-fourths of his hours at seventy or better, or failing to make satisfactory progress in his major, may be placed on probation or asked to withdraw.

REQUIREMENTS FOR THE DEGREE

RESIDENCE

The degree of Bachelor of Arts will not be conferred upon any student who has not been in residence in Cornell during the last two terms preceding graduation and registered in the College of Arts and Sciences. The minimum residence requirement is four full terms of upperclass study. A student may not exceed eight terms of residence without 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.

BACHELOR OF ARTS

For the degree of Bachelor of Arts, a candidate must:

1. Have earned credit for one hundred and twenty hours under the conditions specified in the description of underclass and upperclass requirements.
2. Have satisfied the prescribed underclass and upperclass requirements.
3. Have completed the work in physical education as prescribed by the University faculty.

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 received the grade of 80 or better in at least ninety hours of courses, and of 90 or better in at least sixty of these; (2) have not received a grade below 70 in more than one course; (3) have received no marks lower than 60. To qualify for the degree of Bachelor of Arts with Distinction in all subjects, a candidate must have completed at least sixty hours at Cornell in courses taught in the College of Arts and Sciences; and if he has received credit toward his degree for work done in another institution, the requirement of grades shall be prorated for the residue of work which must be completed in Arts and Sciences at Cornell.

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. When performance has been outstanding, the degree of Bachelor of Arts with High Honors will be conferred. When performance does not justify a degree with Honors, the student may receive course credit toward the degree of Bachelor of Arts.

To be eligible for admission to an Honors program, a student must have upperclass standing and a cumulative average grade of at least 80. A student who, after admission to Honors work, fails to maintain this average or for any other reason is found by his department to be unsuited to Honors work, will revert to candidacy for the regular Bachelor of Arts degree.

SPECIAL PROGRAMS

Certain programs of study are available which do not in themselves lead to a degree but consist of an arrangement of optional courses constituting a useful adjunct to the student's regular major.

PREPARATION FOR TEACHING. Students planning to teach in the secondary schools may combine professional preparation with other prescriptions of the College in satisfaction of the requirements for graduation. A fifth year of preparation is required for the permanent certificate in New York State.

Programs for such students have been arranged in English, in speech, in foreign languages, in social studies, in science, and in mathematics. Advice should be sought early regarding teaching opportunities in these subjects, combination of subjects usually required of teachers, choice of the major subject, and related matters.

Questions may be directed to Professor L. B. Hixon, School of Education, 112 Stone Hall, and to members of the advisory committee representing the various fields of concentration. New students interested in teaching are requested to confer with Professor Hixon in their first term of residence. (See also the *Announcement of the School of Education*.)

PREMEDICAL STUDENTS. All premedical students are requested to report once each semester to Professor L. L. Barnes, Rockefeller 155, who is the chairman of the Premedical Advisory Board.

Certain minimum admissions requirements are prescribed by all medical schools. Since the most substantial of these requirements is in the field of chemistry, it is recommended that the freshman premedical student include chemistry in his course of study. Some freshman premedical students choose to take two sciences; either chemistry and zoology or chemistry and physics. Students who plan to make zoology their major subject will find it advantageous to include zoology in their freshman programs.

Medical educators are quite generally agreed that when a premedical student is planning his college course, he should not allow his interest in science to exclude studies in the humanities. They are also agreed that it would be unfortunate for the future of medicine if all premedical students were to take the same premedical course or major in the same subjects.

The Premedical Advisory Board suggests that the following be included in the first-semester program: English 111 or the equivalent (three hours), French or German (six hours), or Latin (three hours); chemistry (three hours).

MILITARY TRAINING. Programs leading to a commission are offered in military science, naval science, and air science. Credit for advanced courses may be counted in upperclass hours to the extent of twelve hours. Full descriptions of the programs may be found in the *Announcement of Military Training*.

THE LIBRARIES

The central University Library, in two adjoining buildings—the Uris Undergraduate Library and the John M. Olin Research Library—is one of the chief assets of the College of Arts and Sciences. Its holdings, together with the collections in the college, school, and department libraries—housed in the various academic buildings—amount to more than 2,200,000 volumes. The library ranks seventh in number of volumes among university libraries in the United States. To the rich resources assembled by the founders and by succeeding scholars and librarians, about 70,000 volumes are being added each year.

The library not only provides the reference and collateral reading materials necessary for the support and enrichment of teaching and research but also has extensive collections of rare books, newspapers, maps, documents, manuscripts, microfilm, and microcards. Subscriptions to more than 4000 periodicals are maintained. Many of the collections in special fields are distinguished for completeness of coverage and value of individual items.

A union catalog includes the holdings of all libraries on the Ithaca campus. All books are available for use by undergraduates, although of necessity some must be used under restricted conditions.

Freshman students are scheduled for a library lecture-tour as a means of becoming familiar with the facilities and services of the library. All students, as well as the public, also enjoy a constantly changing series of exhibitions, displaying the specialized materials and treasures of the library.

RESIDENTIAL HALLS

On the Cornell campus are dormitories for both men and women. Cafeteria and dining service is also provided in several campus buildings. Male students are not required to live in dormitories and are individually responsible for making their own living or dining arrangements. Each male candidate for admission will, however, receive a form for application to the Residential Halls. Housing in dormitories can be guaranteed for undergraduate men who have been admitted and have filed dormitory applications by June 1.

Inquiries concerning off-campus housing should be addressed to the Off-Campus Housing Office, Day Hall.

Women undergraduate students, with few exceptions, are required to live and take their meals in dormitories or in sorority houses (for members only). Permission to live elsewhere in Ithaca is granted only under exceptional circumstances upon written application to the Dean of Students. An application form for the Residential Halls for undergraduate women will be sent with the notice of acceptance from the Office of Admissions, Day Hall.

Graduate students and married students should write the Department of Residential Halls for information on living accommodations.

SCHOLARSHIPS AND PRIZES

The scholarships listed below are open only to students of the College of Arts and Sciences. For these and others open to all students at entrance a single application form may be secured from the Office of Scholarships and Financial Aid, Day Hall. Enrolled students may compete for prizes (see *Announcement of Prize Competitions*, which may be obtained at the Visitor Information Center, Day Hall).

THE DEAN'S SCHOLARSHIPS are open to men and women entering the College of Arts and Sciences. The annual awards vary from \$100 to \$1800, depending upon financial need. The tenure is four years if the scholastic record of the recipient is creditable. At least twenty scholarships are awarded annually. January Scholastic Aptitude Test of the College Entrance Examination Board is required. Final selection and award are based upon academic promise, general character, and financial need. Preference will be given to candidates from areas not well represented in the present student body of the College of Arts and Sciences.

THE SPENCER L. ADAMS SCHOLARSHIPS (two scholarships) are open to freshman men. Annual award, \$800. Tenure is four years, providing academic standing in the upper fifth of the class is maintained. Preference will be shown to students majoring in the humanities, foreign language, or economics.

THE ELISABETH REAMER CARSON SCHOLARSHIP ENDOWMENT was established by James H. Carson and Elisabeth Reamer Carson in 1958. Elisabeth Reamer Carson graduated in 1927. The scholarship is open to any student in the College. Annual award may vary from \$400 to \$1250. The scholarship may be held for four years. Financial need, academic promise, and general character will be considered in making the award.

THE GEORGE C. BOLDT MEMORIAL SCHOLARSHIPS (three scholarships) were created by George C. Boldt, Jr., as a memorial to his father. Each is worth \$500. They will be awarded at the close of the junior year to the three men students of the College who are considered most deserving of this aid. Applications for these scholarships must be filed in the Office of the Dean before March 15 of the academic year preceding the year for which they are awarded. Students enrolled both in this College and in the Law School, the Medical College, or the Graduate School are not eligible.

THE CHESTER BUCHANAN MEMORIAL SCHOLARSHIP is a gift of Mrs. Claire F. Buchanan, in memory of her son, Chester Buchanan. It carries an annual stipend of \$300. It is awarded each year on the recommendation of the Department of Geology to the outstanding male senior who is majoring in this subject.

THE CORNELIS W. de KIEWIET SCHOLARSHIP, established by members of the Board of Trustees in honor of the former Acting President of Cornell University, carries an annual award of \$500. It will be awarded to a student majoring in history who, at the end of his junior year, shows the greatest promise of creative work in history.

THE CORNELIA L. HALL SCHOLARSHIP, established by a gift of the late Mary F. Hall, is worth \$120. It is "open to any meritorious young woman of this State, who is pursuing the studies of the A.B. course and who is in need of financial assistance." Under the terms of the bequest, preference must be given to a suitable candidate from Tioga, Tompkins, or Chemung County; within this preferred class, women of senior or junior standing will be regarded as entitled to first consideration. Applications must be filed in the Office of the Dean before March 15 of the academic year preceding the year for which the scholarship is awarded.

THE GERTRUDE C. HEMINGWAY SCHOLARSHIP, amounting approximately to \$500, is awarded annually to "some deserving young woman student majoring in French, Spanish, or Greek language." Quality of work and financial need will be considered in making the award.

THE HUGUENOT SOCIETY OF AMERICA SCHOLARSHIP is open to men and women entering the College who establish with the Society their Huguenot descent. The annual award is \$400. The scholarship may be held for four years; only one is available.

THE MYRTLE H. MILLER SCHOLARSHIP is open to men and women entering the College of Arts and Sciences. Annual award varies but may be as high as \$1200. Tenure is four years. One or more scholarships are available each year. January Scholastic Aptitude Test of the College Entrance Examination Board is required. Final selection and award are based upon academic promise, proficiency in mathematics, general character, and financial need.

THE MICHAEL W. MITCHELL MEMORIAL SCHOLARSHIP, initiated by Justice William O. Douglas and a group of his associates, carries a stipend of \$350. Under the terms of this bequest, the award is made upon the recommendation of the Chairman of the Department of Geology to a "student majoring in geology who proves himself adept in other liberal arts fields as well as geology—a student of the world."

THE HENRY L. O'BRIEN, JR., SCHOLARSHIP, established by the W. Alton Jones Foundation, Inc., in 1953, as a memorial to Henry L. O'Brien, Jr., is worth \$885 a year. It is awarded to a male citizen of the United States entering the College of Arts and Sciences as a freshman. It may be retained for four years if his scholarship record is satisfactory. Character, scholastic ability, need, and participation in extracurricular activities will be considered in awarding the scholarship.

THE FREDERICK A. PEEK SCHOLARSHIP FUND is open to men and women entering this College. The annual award varies from \$100 to \$1500 according to financial need. The scholarship may be held for four years, provided the recipient maintains an average in the top half of the class. Financial need, academic promise, and general character will be considered in making the award.

THE JOHN AND CHARLOTTE E. REAMER MEMORIAL ENDOWMENT SCHOLARSHIPS are open to men and women entering this College. Annual award varies according to financial need but may be as high as \$1800. Approximately ten scholarships are available each year. The recipient may hold the scholarship for four years provided his term averages place him in the top half of his class. The January Scholastic Achievement Test of the College Entrance Examination Board is required. Final selection and award will be based upon academic promise, general character, and financial need. Preference will be accorded applicants intending to major in the humanities.

THE FREDERICK A. RICE SCHOLARSHIP ENDOWMENT scholarship is the gift of Frederick A. Rice, '09, and Mrs. Rice, and is open to men students in this College. The annual award is \$140, and the scholarship may be held for four years. Preference is given to candidates from California. Financial need, academic promise, and general character will be considered in making the award.

THE WINTON G. ROSSITER SCHOLARSHIP, worth \$250, is awarded annually to an outstanding senior in this College, who while earning a good part of his expenses through his own efforts, has nevertheless maintained a distinguished academic record and contributed substantially to the life of the University.

THE GENERAL MOTORS SCHOLARSHIPS were established by the General Motors Corporation in 1955. They are available to freshman men or women who are citizens of the United States and are entering this College. The tenure is four years, providing the recipient maintains an average which will place him in the top half of his class term by term. Two scholarships will be available each year with a value of from \$200 to \$2000, depending on the demonstrated need of the individual. Final selection and award are based upon outstanding academic promise, general character, and financial need.

THE PROCTER AND GAMBLE SCHOLARSHIPS were established by the Procter and Gamble Fund in 1955. One of these scholarships is available each year to either men or women students entering this College. The annual award is designed to cover tuition, fees, books, and supplies. Tenure is four years, but to ensure continuance of the scholarship the recipient must maintain a term-by-term average in the top half of his class. Final selection is based upon academic promise and performance, general character, and financial need.

COURSES OF INSTRUCTION

AMERICAN STUDIES

Mr. ROBERT H. ELIAS, *Chairman* (on leave, 1963-1964); Mr. DAVID B. DAVIS, *Acting Chairman*, 1963-1964; Messrs. STUART M. BROWN, JR., MALCOLM COWLEY, DOUGLAS F. DOWD, ANDREW HACKER, CLINTON ROSSITER, ROBIN M. WILLIAMS, JR.

The aim of major study in the interdepartmental program of American Studies is to enable the student to understand the development of American civilization—its culture, its history, its economic, social, and political institutions—and the way that development is related to its backgrounds; to become acquainted with various disciplines or approaches to the study of the United States; to use a single discipline in advanced exploration.

To enter the major a student must have completed two terms of work in introductory courses in each of the following three categories: (a) English, European, and American history, (b) English and American literature, and (c) the American economy, American government, and American society; and must secure the permission of the Chairman.

Students majoring in American Studies must complete at least (a) six terms of upperclass courses in the field of concentration (economics, government, history, literature, or sociology), four terms of which shall be devoted to American subjects and two terms to related aspects of European culture; (b) four terms of upperclass courses in American subjects outside the field of concentration; (c) two terms in American Studies 401-402. Requirement (b) will be wholly or partially waived if the student prefers to offer such courses in satisfaction of Distribution II.

To enter the Honors program, a student must have a minimum cumulative average grade of 80 in all subjects and of 85 in major subjects, and must apply to the Chairman a week before the preregistration period in the spring of his junior year. Candidates for Honors will take American Studies 491-492 in partial fulfillment of major requirement "a," and American Studies 490 in partial fulfillment of either "a" or "b," depending upon the student's individual needs.

401-402. SEMINAR IN AMERICAN STUDIES. Throughout the year. Credit four hours a term. Required of American Studies majors in the senior year and open to other specially qualified seniors with consent of instructor. W 2-4. Fall term, Mr. DAVIS; spring term, Mr. COWLEY.

An advanced course intended to raise central questions concerning the methods and assumptions of the various disciplines and the relation of these disciplines to each other. Fall term: changing concepts of the American character—a study of images and interpretations of the American character from the early nineteenth century to the present, through an analysis of selected fiction by such writers as Cooper, Twain, James, Howells, Dreiser, Anderson, Lewis, and Fitzgerald, and of com-

mentaries by Tocqueville and modern social scientists. Spring term: the 1930's.

490. READINGS IN AMERICAN STUDIES. Spring term. Credit four hours. Prerequisites, senior standing and provisional acceptance as a candidate for Honors. Hours to be arranged.

A study of selected texts and problems, under the supervision of members of the staff, culminating in a comprehensive examination.

491-492. HONORS WORK IN AMERICAN STUDIES. Throughout the year. Credit four hours a term. Prerequisites, senior standing and provisional acceptance as a candidate for Honors. Hours to be arranged.

An extended study of a special topic, culminating in the writing of an Honors thesis, under the supervision of members of the staff.

ANTHROPOLOGY

Mr. ALLAN R. HOLMBERG, *Chairman*; Messrs. ROBERT ASCHER, CHARLES F. HOCKETT, WILLIAM W. LAMBERT, ALEXANDER H. LEIGHTON, Mrs. DOROTHEA C. LEIGHTON, Messrs. MORRIS E. OPLER, PERTTI J. PELTO, JOHN M. ROBERTS, LAURISTON SHARP, G. WILLIAM SKINNER, ROBERT J. SMITH, VICTOR W. TURNER, Miss BARBARA E. WARD, Messrs. ARTHUR P. WOLF, FRANK W. YOUNG.

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

ANTHROPOLOGY:

For admission to the major in anthropology a student should have taken Anthropology 101 and 103. Students admitted to the major without having taken Anthropology 101 and 103 must take Anthropology 301, which will not count toward the total hours in the major.

The major is required to take thirty-two hours in anthropology, chosen from among courses at the 300 level or higher. Of these thirty-two hours, at least eight hours must be taken at the 400 level or higher.

Two courses must be selected from the following: 311-319, 413, 461, 482. Two courses must also be selected from the following: 321, 350-359, 451-459, Zoology 370, Linguistics 301. Four courses must be selected from the following, with at least one course from each of the three categories: (1) 321-329, 421-429 (topical comparisons); (2) 331-339, 431-439 (ethnography); (3) 341-349, 441-449 (complex societies).

The student is required to complete one two-course sequence at the 300 or 400 level in another subject related to anthropology, subject to the approval of the major adviser.

Students seeking admission to the Department's Honors program should file application on a form obtainable in the departmental office, not later than November 1 of their junior year. Honors candidates must have a general average of at least 80 and an average in departmental courses of at least 85, or show exceptional promise. Honors students may fulfill part or all of their 400-level requirements by means of the Honors seminar.

Specialized instruction is offered in Anthropology 411-412 (Topics in Anthropology). Such study is open to a strictly limited number of upperclassmen. Consent of the instructor is required.

Attention of students is directed to the course offerings in linguistics, in which subjects closely related to general anthropology are treated.

Because of the number of related studies combined in anthropology, the Department has adopted the following code with regard to the second digit in anthropology course numbers: 0 (as in 301), survey and general courses; 1 (as in 315), anthropological theory and method; 2, topical/comparative ethnology courses; 3, ethnographic surveys; 4, courses in complex societies; 5, archeology; 6, linguistics; 7, physical anthropology; 8, applied anthropology.

Students electing to satisfy the requirements of Distribution I in anthropology may offer Anthropology 101 and 103; or may offer 101 or 103 plus any of the 200-level anthropology courses.

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.

(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 Psychology 207 (Introduction to Personality and Social Psychology).
- c. Either Industrial and Labor Relations 210 or Psychology 201 (the latter is recommended for the student who intends to take advanced courses in psychology).

(2) *The major:* The major calls for a minimum of 36 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 510).

c. At least one course in theory which is related to social relations.

d. The senior seminar in social relations (Sociology 495 or Anthropology 495).

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

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

101. INTRODUCTION TO CULTURAL ANTHROPOLOGY. Either term. Credit three hours. Fall term: lectures, M W F 10. Spring terms: lectures, T Th S 11. Discussion sections to be arranged. Mr. WOLF.

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 material is drawn largely from non-Western societies.

103. INTRODUCTION TO ARCHEOLOGY AND PHYSICAL ANTHROPOLOGY. Fall term. Credit three hours. Lectures, T Th 11. Discussion sections to be arranged. Mr. SMITH.

An introduction to physical anthropology and prehistoric archeology. Topics include human origins, early types and modern races of man, the prehistoric development of culture. Discussion of the concept of human and cultural evolution.

202. ANTHROPOLOGY IN THE MODERN WORLD. Spring term. Credit three hours. T Th S 9. Mr. HOLMBERG.

The uses of anthropology in the modern world. Designed not only for students of the humanities and social sciences, but also for natural scientists concerned with the cultural problems involved in technological change, community development, native administration, and modernization in various regions of the world.

INTRODUCTION TO PERSONALITY AND SOCIAL PSYCHOLOGY. (See Psychology 207.)

CROSS-CULTURAL RESEARCH METHODS. (See Rural Sociology 216.)

232. INDIANS OF THE AMERICAS. Spring term. Credit three hours. M W F 9. Mr. SMITH.

An introduction to selected native cultures of North and South America, with special attention to the history of contact with Euro-American groups and the regularities of culture change.

[241. CIVILIZATIONS OF EAST ASIA. Fall term. Credit three hours. T Th S 9. Mr. SKINNER. Not offered in 1963-1964.]

COURSES FOR UPPERCLASSMEN AND GRADUATE STUDENTS

The first four courses listed in this group are general courses in the major subfields of anthropology.

301. CULTURAL ANTHROPOLOGY. Fall term. Credit four hours. M W F 12. Mr. OPLER.

A study and comparison of the types of learned, shared, and transmitted behavior patterns and ideas by means of which men of various periods and places have dealt with their environment, worked out their social relations with their fellow men, and defined their place in the cosmos. An inquiry into human nature and its expression in man's institutional and intellectual creations.

303. PREHISTORIC ARCHEOLOGY. Fall term. Credit four hours. M W F 11. Mr. ASCHER.

A study of prehistory from the origin of culture through the beginnings of civilization. The archeological evidence for theories of the origin and development of culture is emphasized. Selected cases of prehistoric food gathering, food producing, and urban societies are examined.

PHYSICAL ANTHROPOLOGY: HUMAN EVOLUTION. (See Zoology 370.)

GENERAL LINGUISTICS. (See Linguistics 301.)

312. CULTURE AND PERSONALITY. Spring term. Credit four hours. Prerequisite, one course at the 100 or 200 level in anthropology, sociology, psychology, or zoology. M W F 10. Messrs. LAMBERT and OPLER.

The study of the individual in his society, emphasizing the relationship between social structure, cultural context, and human behavior. Attention is given largely to the study of personality, "normal" and "abnormal," in non-Western societies.

315. SURVEY OF ANTHROPOLOGICAL THEORY. Fall term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of instructor. M W F 12. Mr. PELTO.

A study of the main schools of theory (evolutionary, historical, functional, etc.) as they have developed and played their part in the history of anthropology. Attention will also be given to problems of translation of theory into workable research design and strategy.

[321. COMPARATIVE SOCIAL ORGANIZATION. Fall term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of instructor. M W F 3. Mr. SHARP. Not offered in 1963-1964.]

322. COMPARATIVE POLITICAL AND LEGAL ORGANIZATION. Spring term. Credit four hours. M W F 11. Mr. ROBERTS.

A survey of the fields of primitive government

and law. Selected governmental and legal systems will be compared in terms of relevant anthropological theories and problems.

323. COMPARATIVE RELIGIOUS SYSTEMS. Fall term. Credit four hours. Prerequisite, an introductory course in anthropology, psychology, or philosophy; or sociology of religion; or consent of the instructor. M W F 10. Mr. TURNER.

A comparative study of systems of religious thought and behavior found among primitive and non-Western peoples. The material covered deals with such concepts as animism, magic, witchcraft, ritual, possession, the after-life, totemism, and shamanism, and with theories of the origin, development, and functions of religion.

324. ART AND CULTURE. Spring term. Credit four hours. M W F 2. Mr. SMITH.

A comparative study of the arts of primitive and peasant peoples, emphasizing the applied and graphic arts, but dealing also with dance, drama, and music. Emphasis on contemporary native cultures and the influence on the traditional arts of contact with civilized peoples.

325. COMPARATIVE ECONOMIC BEHAVIOR. Fall term. Credit four hours. M W F 11. Mr. HOLMBERG.

A comparative survey of the social organization of production, exchange, and consumption of goods in tribal and peasant societies. Attention is also focused on problems of economic development in non-Western societies.

326. FOLKLORE AND CULTURE. Spring term. Credit four hours. M W F 3. Mr. TURNER.

A survey of the oral literature, sacred and secular, of nonliterate peoples and of the sacred texts, myths, and legends of non-Western folk cultures. Regional differences are traced, and problems of symbolism, regional and universal, are considered. The place of folklore in the perpetuation of tradition, the maintenance of values, the codification of religion and custom, and the provision of emotional outlets is probed. Attention is given to the degree and manner in which folklore reflects and justifies other aspects of the culture.

327. CONSTANTS AND VARIANTS IN CULTURE. Fall term. Credit four hours. M W F 2. Mr. ROBERTS.

An examination of those similarities and differences in cultures throughout the world which have claimed the attention of behavioral scientists. Major cross-cultural studies

are reviewed, and specific use is made of the Human Relations Area files in Olin Library.

331. ETHNOLOGY OF NORTH AMERICA. Fall term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of instructor. M W F 3. Mr. ROBERTS.

A general survey of the ethnography of North America, with emphasis on problems and topics to which the North American materials are most relevant. Selected cultures will be considered in some detail.

[**332. ETHNOLOGY OF MIDDLE AND SOUTH AMERICA.** Spring term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of instructor. M W F 9. Mr. HOLMBERG. Not offered in 1963-1964.]

334. ETHNOLOGY OF SOUTHEAST ASIA. Spring term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of instructor. T Th 2-3:30. Miss WARD.

The development and distribution of major sociocultural systems in mainland and island Southeast Asia. Discussion of selected groups and of the fate of traditional cultural characteristics following the expansion of Chinese, Indian, Moslem, and Western civilizations into these areas.

336. ETHNOLOGY OF THE CIRCUMPO-LAR AREA. Spring term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of instructor. M W F 2. Mr. PELTO.

A survey of native cultures of the North in the New and Old Worlds, dealing with problems of cultural history, social structure and cultural organization, aspects of personality, and change in the modern world.

337. ETHNOLOGY OF AFRICA. Fall term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of the instructor. T Th S 9. Mr. TURNER.

A social and cultural survey of representative African peoples. Stress is laid on the comparative study of political institutions and local descent groups. Ritual beliefs and practices are considered in relation to repetitive and radical change.

341. CULTURE AND SOCIETY IN INDIA AND SOUTH ASIA. Fall term. Credit four hours. M W F 9. Mr. OPLER.

A survey of the social, economic, political, and religious institutions of India and other countries of South Asia. Both the traditional cultures and the changes which are taking place are considered.

[**343. CHINESE CULTURE AND SOCIETY: TRADITIONAL.** Fall term. Credit four hours.

Prerequisite, Anthropology 101 or 301, or consent of the instructor. T Th S 10. Mr. SKINNER. Not offered in 1963-1964.]

[344. **CHINESE CULTURE AND SOCIETY: COMMUNIST.** Spring term. Credit four hours. Prerequisite, Anthropology 343. T Th S 10. Mr. SKINNER. Not offered in 1963-1964.]

345. **JAPANESE CULTURE AND SOCIETY.** Fall term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of the instructor. M W F 9. 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.

[348. **PEASANT CULTURES OF EUROPE.** Spring term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of the instructor. M W F 3. Mr. PELTO. Not offered in 1963-1964.]

[351. **EARLY MAN IN THE AMERICAS.** Fall term. Credit four hours. M W F 11. Mr. ASCIER. Not offered in 1963-1964.]

411-412. **TOPICS IN ANTHROPOLOGY.** Throughout the year. Credit two or four hours. Staff.

[413. **THEORY OF CULTURE CHANGE.** Fall term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of the instructor. M W F 11. Mr. HOLMBERG. Not offered in 1963-1964.]

421. **SEMINAR: ANTHROPOLOGY AND MEDICINE.** Fall term. Credit four hours. Prerequisite, Anthropology 101 or 301, or consent of the instructor. Hours to be arranged. Mrs. LEIGHTON.

The study of relationships between social science and medicine. Problems of the role of sickness and its treatment in primitive societies; modern medical programs as instances of technological change; social investigations of medical institutions as aspects of the social systems; relationships between socio-cultural factors and disease, especially psychiatric disorder.

424. **SEMINAR: CONTENT OF CULTURE.** Spring term. Credit four hours. Th 4-6. Mr. ROBERTS.

Attention is given to the description and management of the informational resource known as culture with a view to developing a theory of culture content. Codes, models, and inventories are given specific attention.

[441. **THE INDIVIDUAL AND THE FAMILY IN CHINESE SOCIETY.** Spring term. Credit four hours. Prerequisites, Anthropology 312 or 343, Psychology 207 or 341, Sociology 382, or consent of instructor. M W F 3. Mr. WOLF. Not offered in 1963-1964.]

[442. **SEMINAR: COMPARATIVE SOCIAL ORGANIZATION OF COMPLEX SOCIETIES.** Spring term. Credit four hours. Prerequisite, Anthropology 321, or consent of instructor. Th 2-4. Mr. SKINNER. Not offered in 1963-1964.]

444. **SEMINAR: CHINESE CULTURE AND SOCIAL STRUCTURE.** Spring term. Credit four hours. Prerequisite, Anthropology 343, or consent of instructor. T Th 10. Miss WARD.

Selected problems in the analysis of Chinese cultural and social systems, in China and overseas, and from the 19th century to the present. The theme of the seminar will vary within this range from one year to the next. In 1963-1964 the seminar will focus on social structure in Hongkong and southeastern China.

452. **SEMINAR: ARCHEOLOGICAL INTERPRETATION.** Spring term. Credit four hours. Prerequisite, Anthropology 103 or 303 or 351, or consent of instructor. M W 12. With field work arranged. Mr. ASCHER.

A study of analytic, laboratory, and field procedures in archeology. Problems in the recovery and marshaling of data and in the reconstruction and comparison of cultures known from archeological evidence. Particular attention is given to the logic of archeological reasoning.

461. **SEMINAR: ETHNOLINGUISTICS AND PSYCHOLINGUISTICS.** Fall term. Credit four hours. Prerequisites, Anthropology 101 or 301 and Linguistics 201 or 301, or consent of instructor. W 4-6. Mr. HOCKETT.

A survey of problems and findings in the interrelations of language and culture, and of language and the individual.

482. **SEMINAR: APPLIED ANTHROPOLOGY.** Spring term. Credit four hours. Prerequisite, consent of instructor. M 4-6. Mr. HOLMBERG.

The principles of anthropology applied to planned programs of change. Designed not only for students of the humanities and different societies but also for natural scientists concerned with social and cultural problems involved in technological change, community development, native administration, and modernization in various regions of the world. The seminar is designed especially to prepare advanced undergraduate and graduate students for technical missions abroad.

491-492. **HONORS SEMINAR.** Throughout the year. Credit four hours. Hours to be arranged. Messrs. ASCHER and PELTO.

495. **SOCIAL RELATIONS SEMINAR.** Fall term. Credit four hours. Open only to seniors majoring in social relations. Hours to be arranged. Staff.

GRADUATE SEMINARS

516. **SEMINAR: ANTHROPOLOGICAL THEORY.** Spring term. Credit four hours. T 4-6. Mr. OPLER.

A systematic treatment of schools of thought in anthropology (historical, structural-functional, evolutionary, etc.), of principal concepts developed by the discipline, and of important figures who have contributed to anthropological theory. The relation of concepts which appear in anthropological theory to the general history of thought is constantly probed in an effort to understand both how ideology in anthropology has been influenced by developments in other disciplines and what anthropology has contributed to the main stream of ideas since its emergence as a distinct field of inquiry.

518. **SEMINAR: METHODS IN ANTHROPOLOGY.** Spring term. Credit four hours. W 4-6. Mr. PELTO.

A study of the methodological problems entailed in planning and execution of empirical research in cultural anthropology. The emphasis is on the translation of hypotheses into workable research design and strategy.

[523. **SEMINAR: COMPARATIVE SYSTEMS OF IDEAS.** Fall term. Credit four hours. Th 4-6. Mr. SHARP. Not offered in 1963-1964.]

541. **SEMINAR: MIDDLE AND SOUTH AMERICA.** Fall term. Credit four hours.

Prerequisite, consent of instructor. T 4-6. Mr. HOLMBERG.

An analysis of the economic, social, political, and ideological aspects of contemporary Latin American culture in relation to current trends of change and modernization.

542. **SEMINAR: AFRICA.** Spring term. Credit four hours. F 4-6. Mr. TURNER.

Selected social and cultural problems are considered.

[545. **SEMINAR: INDIA AND SOUTH ASIA.** Fall term. Credit four hours. Th 4-6. Mr. OPLER. Not offered in 1963-1964.]

[546. **SEMINAR: COMPARATIVE MODERNIZATION OF CHINA AND JAPAN.** Spring term. Credit four hours. Prerequisite, consent of instructor. Th 2-4. Messrs. SKINNER and SMITH. Not offered in 1963-1964.]

[548. **SEMINAR: SOUTHEAST ASIAN ANTHROPOLOGY.** Spring term. Credit four hours. Th 4-6. Mr. SHARP. Not offered in 1963-1964.]

571. **SEMINAR: CULTURE AND HUMAN EVOLUTION.** Fall term. Credit four hours. M 4-6. Mr. ASCHER.

The origin and evolution of man is explored by examining the interplay of biological and cultural factors.

615-616. **DIRECTED RESEARCH.** Throughout the year. Credit to be arranged. Hours to be arranged. Staff.

617-618. **FIELD RESEARCH.** Throughout the year. Credit to be arranged. Staff.

Field research seminars are conducted in the United States, Canada, Peru, India, South-east Asia, Taiwan, Japan, and other areas for a limited number of adequately prepared students.

ASIAN STUDIES

Mr. ROBERT J. SMITH, *Chairman*; MESSRS. ALLEN C. ATWELL, KNIGHT BIGGERSTAFF, NICHOLAS C. BODMAN, JOHN M. ECHOLS, GORDON H. FAIRBANKS, JAMES GAIR, FRANK H. GOLAY, RANAJIT GUHA, CHARLES F. HOCKETT, R. B. JONES, GEORGE McT. KAHN, GERALD B. KELLEY, JOHN W. LEWIS, TAI-CHUNG LIU, ROBERT M. MARSH, JOHN W. MELLOR, MISS HARRIET C. MILLS, MESSRS. BAL G. MISRA, MORRIS E. OPLER, ROBERT A. POLSON, HAROLD SHADICK, LAURISTON SHARP, G. WILLIAM SKINNER, MISS BARBARA E. WARD, MESSRS. ARTHUR P. WOLF, MARTIE 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 be recommended by the instructor in charge of that course. He must have received a minimum grade of 75 in this and in all other courses taken in the Department.

The candidate for the B.A. with a major in Asian Studies is required to complete at least eighteen hours 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 over. Majors normally concentrate in one of the following areas: China, Japan, South Asia, Southeast Asia.

The candidate for Honors must maintain a cumulative average of 85 in courses in the humanities and social sciences. He must also maintain an average of 85 in courses in the Department. In his senior year, the Honors candidate will take a two-term graduate seminar selected from among those listed below in consultation with his adviser, normally taking a seminar relating to the area in which his studies have been concentrated.

The Honors candidate will also take the Honors Course (Asian Studies 401-402) in which he writes his Honors paper. At the end of his junior year, the student should consult with the professor with whom he plans to write his paper to obtain permission to register for the Honors Course. There will be a comprehensive written examination in May of his senior year, administered by the supervisor of his Honors work.

ASIA, GENERAL

[**CIVILIZATIONS OF EAST ASIA.** Fall term. T Th S 9. Mr. SKINNER. (See Anthropology 241.) Not offered in 1963-1964.]

[**SEMINAR: COMPARATIVE MODERNIZATION OF CHINA AND JAPAN.** Spring term. Th 2-4. Messrs. SKINNER and SMITH. (See Anthropology 546.) Not offered in 1963-1964.]

ECONOMICS OF AGRICULTURAL DEVELOPMENT. Spring term. T Th S 9. Mr. MELLOR. (See Agricultural Economics 154, College of Agriculture.)

SEMINAR ON THE ECONOMICS OF AGRICULTURAL DEVELOPMENT. Spring term. Hours to be arranged. Mr. MELLOR. (See Agricultural Economics 254, College of Agriculture.)

[**COMPARATIVE ECONOMIC SYSTEMS: JAPAN, INDIA, CHINA.** Fall term. M W F 11. Mr. GOLAY. (See Economics 365.) Not offered in 1963-1964.]

PUBLIC POLICY AND ECONOMIC DEVELOPMENT. Fall term. M W F 9. Mr. GOLAY. (See Economics 371.)

[**CONTINENTAL GEOGRAPHY (ASIA).** Spring term. M W F 9. Mr. BLOOM. (See Geography and Geology 314.) Not offered in 1963-1964.]

THE UNITED STATES AND ASIA. Fall term. M W F 8. Mr. KAHN. (See Government 377.)

SEMINAR IN THE INTERNATIONAL RELATIONS OF ASIA. Fall term. Hours to be arranged. Mr. KAHN. (See Government 577.)

STUDIES IN ASIAN ART. Spring term. Hours to be arranged. Mr. ATWELL. (See Art 353, College of Architecture.)

[**INTRODUCTION TO ASIAN ART.** Fall term. M W F 11. Mr. YOUNG. (See History of Art 381.) Not offered in 1963-1964.]

[**ART OF INDIA AND SOUTHEAST ASIA.** Spring term. M W F 11. Mr. YOUNG. (See History of Art 386.) Not offered in 1963-1964.]

[**SEMINAR: METHODS OF RESEARCH IN ASIAN ART.** Fall term. T 2-4:30. Mr. YOUNG. (See History of Art 483.) Not offered in 1963-1964.]

SEMINAR: PROBLEMS IN ASIAN ART. Spring term. T 2-4:30. Mr. YOUNG. (See History of Art 484.)

COMPARATIVE RURAL SOCIETIES. Fall term. M W F 11. Mr. POLSON. (See Rural Sociology 120, College of Agriculture.)

COMPARATIVE SOCIAL STRUCTURE. Fall term. M W F 2. Mr. MARSH. (See Sociology 349.)

401-402. HONORS COURSE. Throughout the year. Credit four hours a term. Staff.

This course, in which the student writes an Honors essay, is required of all Honors students in their senior year. It is normally taken with the student's major adviser.

591-592. SEMINAR: FIELD RESEARCH. Throughout the year. Staff.

Field research seminars for selected advanced students are conducted in South Asia, Southeast Asia, Hong Kong, Taiwan, or Japan by staff members who are themselves working in these areas.

CHINA

AREA COURSES

[**CHINESE CULTURE AND SOCIETY: TRADITIONAL.** Fall term. T Th S 10. Mr. SKINNER. (See Anthropology 343.) Not offered in 1963-1964.]

[**CHINESE CULTURE AND SOCIETY: COMMUNIST.** Spring term. T Th S 10. Mr. SKINNER. (See Anthropology 344.) Not offered in 1963-1964.]

[*THE INDIVIDUAL AND THE FAMILY IN CHINESE SOCIETY*. Fall term. M W F 10. Mr. WOLF. (See Anthropology 441.) Not offered in 1963-1964.]

SEMINAR: CHINESE CULTURE AND SOCIAL STRUCTURE. Spring term. T Th 10. Miss WARD. (See Anthropology 444.)

[*SEMINAR: OVERSEAS CHINESE CULTURES*. Spring term. F 4-6. Mr. SKINNER. (See Anthropology 544.) Not offered in 1963-1964.]

CHINESE GOVERNMENT AND POLITICS. Fall term. M W F 10. Mr. LEWIS. (See Government 347.)

[*THE FOREIGN POLICY OF CHINA*. Fall term. M W F 8. Mr. LEWIS. (See Government 478.) Not offered in 1963-1964.]

SEMINAR IN THE POLITICS OF CHINA. Spring term. Hours to be arranged. Mr. LEWIS. (See Government 547.)

[*SEMINAR IN THE FOREIGN POLICY OF CHINA*. Spring term. Hours to be arranged. Mr. LEWIS. (See Government 583.) Not offered in 1963-1964.]

HISTORY OF CHINESE CIVILIZATION PRIOR TO THE NINETEENTH CENTURY. Fall term. M W F 12. Mr. BIGGERSTAFF. (See History 323.)

HISTORY OF CHINESE CIVILIZATION: NINETEENTH AND TWENTIETH CENTURIES. Spring term. M W F 12. Mr. BIGGERSTAFF. (See History 324.)

MODERNIZATION OF CHINA. Throughout the year. M 4-6. Mr. BIGGERSTAFF. (See History 491-492.)

SEMINAR IN MODERN CHINESE HISTORY. One or two terms. Hours to be arranged. Mr. BIGGERSTAFF. (See History 691-692.)

ART OF CHINA. Fall term. M W F 11. Mr. YOUNG. (See History of Art 383.)

[*SEMINAR: CHINESE PAINTING: THE FIRST MILLENNIUM*. Fall term. T 2-4:30. Mr. YOUNG. (See History of Art 485.) Not offered in 1963-1964.]

[*SEMINAR: CHINESE PAINTING: THE LATER CENTURIES*. Spring term. T 2-4:30. Mr. YOUNG. (See History of Art 486.) Not offered in 1963-1964.]

SINO-TIBETAN LINGUISTICS. Throughout the year. Hours to be arranged. Mr. BODMAN. (See Linguistics 575-576.)

CHINESE LITERATURE IN TRANSLATION: HISTORICAL AND PHILOSOPHICAL. Fall term. M W F 10. Mr. SHADICK. (See Literature 321.)

CHINESE LITERATURE IN TRANSLATION: POETRY, FICTION, DRAMA. Spring term. M W F 10. Mr. SHADICK. (See Literature 322.)

SEMINAR: THEORY AND RESEARCH IN CHINESE SOCIAL STRUCTURE. Spring term. Hours to be arranged. Mr. MARSH. (See Sociology 614.)

LANGUAGE COURSES

ELEMENTARY CHINESE. (See Chinese 101-102.)

ELEMENTARY HOKKIEN CHINESE. (See Chinese 121-122.)

INTERMEDIATE CHINESE I. (See Chinese 201-202.)

INTRODUCTION TO CLASSICAL CHINESE. (See Chinese 213.)

INTERMEDIATE CHINESE II. (See Chinese 301.)

READINGS IN MODERN CHINESE. (See Chinese 302.)

INTERMEDIATE CLASSICAL CHINESE. (See Chinese 312.)

CHINESE HISTORICAL AND PHILOSOPHICAL TEXTS. (See Chinese 313.)

HISTORY OF THE CHINESE LANGUAGE. (See Chinese 402.)

LINGUISTIC STRUCTURE OF CHINESE. (See Chinese 403.)

ADVANCED READINGS IN MODERN CHINESE. (See Chinese 411-412.)

CLASSICAL CHINESE PROSE. (See Chinese 414.)

[*CLASSICAL CHINESE POETRY AND DRAMA*. (See Chinese 416.) Not offered in 1963-1964.]

SEMINAR IN CHINESE LITERATURE. (See Chinese 571-572.)

JAPAN

AREA COURSES

JAPANESE CULTURE AND SOCIETY. Fall term. M W F 9. Mr. SMITH. (See Anthropology 345.)

ART OF JAPAN. Spring term. M W F 11. Mr. YOUNG. (See History of Art 384.)

Other courses dealing extensively with Japan are: Anthropology 241, 546; Economics 365; Geography 314; Sociology 349.

LANGUAGE COURSES

ELEMENTARY JAPANESE. (See Japanese 101-102.)

JAPANESE READING. (See Japanese 201-202.)

JAPANESE COMPOSITION AND CONVERSATION. Throughout the year. Hours to be arranged. Mr. JONES. (See Japanese 203-204.)

SELECTED READINGS IN JAPANESE. (See Japanese 301-302.)

INTRODUCTION TO CLASSICAL JAPANESE. Throughout the year. Hours to be arranged. Mr. JONES. (See Japanese 305-306.)

SOUTH ASIA

AREA COURSES

CULTURE AND SOCIETY IN INDIA AND SOUTH ASIA. Fall term. M W F 9. Mr. OPLER. (See Anthropology 341.)

[**SEMINAR: INDIA AND SOUTH ASIA.** Fall term. T 4-6. Mr. OPLER. (See Anthropology 545.) Not offered in 1963-1964.]

HISTORY OF INDIAN CIVILIZATION PRIOR TO THE NINETEENTH CENTURY. Fall term. M W F 11. Mr. GUHA. (See History 325.)

HISTORY OF INDIAN CIVILIZATION: NINETEENTH AND TWENTIETH CENTURIES. Spring term. M W F 11. Mr. GUHA. (See History 326.)

SEMINAR IN INDIAN HISTORY. Throughout the year. Hours to be arranged. Mr. GUHA. (See History 693-694.)

SEMINAR: SOUTH ASIAN LINGUISTICS. Either term. Hours to be arranged. Staff. (See Linguistics 600.)

Other courses dealing extensively with South Asia are: Agricultural Economics 154, 254; Art 353; Economics 365, 371; Geography 314; Government 343, 377, 577; History of Art 381, 386, 483, 484.

LANGUAGE COURSES

ELEMENTARY HINDI. (See Hindi 101-102.)

HINDI READING. (See Hindi 201-202.)

HINDI COMPOSITION AND CONVERSATION. (See Hindi 203-204.)

READINGS IN HINDI LITERATURE. (See Hindi 301-302.)

ADVANCED HINDI COMPOSITION AND CONVERSATION. (See Hindi 303-304.)

ADVANCED HINDI READINGS. (See Hindi 305-306.)

SEMINAR IN HINDI LINGUISTICS. (See Hindi 601.)

ELEMENTARY URDU. (See Urdu 101-102.)

ELEMENTARY SANSKRIT. (See Linguistics 523-524.)

ELEMENTARY PALI. (See Linguistics 525.)

ELEMENTARY SINHALESE. (See Sinhalese 101-102.)

ELEMENTARY TELUGU. (See Telugu 101-102.)

SOUTHEAST ASIA

AREA COURSES

ETHNOLOGY OF SOUTHEAST ASIA. Spring term. T Th 2-3:30. Miss WARD. (See Anthropology 334.)

[**SEMINAR: SOUTHEAST ASIAN ANTHROPOLOGY.** Spring term. Th 4-6. Mr. SHARP. (See Anthropology 548.) Not offered in 1963-1964.]

[**SEMINAR: ECONOMIC GROWTH IN SOUTHEAST ASIA.** Fall term. Hours to be arranged. Mr. GOLAY. (See Economics 675.) Not offered in 1963-1964.]

GOVERNMENTS AND POLITICS OF SOUTHEAST ASIA. Spring term. M F 2-3:30. Mr. KAHN. (See Government 344.)

SEMINAR IN POLITICAL PROBLEMS OF SOUTHEAST ASIA. Spring term. Hours to be arranged. Mr. KAHN. (See Government 644.)

SOUTHEAST ASIAN HISTORY PRIOR TO THE PERIOD OF WESTERN INFLUENCE. Fall term. T Th S 12. Mr. ———. (See History 495.)

SOUTHEAST ASIAN HISTORY: THE PERIOD OF WESTERN INFLUENCE. Spring term. T Th S 12. Mr. ———. (See History 496.)

SEMINAR IN SOUTHEAST ASIAN HISTORY. One or two terms. Hours to be arranged. Mr. ———. (See History 695-696.)

SEMINAR: SOUTHEAST ASIAN LINGUISTICS. Throughout the year. Hours to be arranged. Mr. JONES. (See Linguistics 571-572.)

[SEMINAR: MALAYO-POLYNESIAN LINGUISTICS. Fall term. Hours to be arranged. Mr. ECHOLS. (See Linguistics 573.) Not offered in 1963-1964.]

[SOUTHEAST ASIAN LITERATURE IN TRANSLATION. Spring term. T 2-4. Mr. ECHOLS. (See Literature 318.) Not offered in 1963-1964.]

501-502. SOUTHEAST ASIA. Throughout the year. F 4-6 or to be arranged. Staff. A graduate-level survey of the cultures and history of Southeast Asia covering the pre-European, colonial, and postcolonial periods, but with particular emphasis on postwar developments and contemporary problems. Will occasionally focus on a problem common to the area as a whole, but usually deals with a different country of Southeast Asia each term. 1963-1964: Vietnam and Indonesia; 1964-1965: Malaya and Thailand.

Other courses dealing extensively with Southeast Asia are: Anthropology 241; Art 353; Economics 371; Geography 314; Government 377, 577; History of Art 381, 386, 483, 484; Rural Sociology 120.

LANGUAGE COURSES

ELEMENTARY BURMESE. (See Burmese 101-102.)

BURMESE READING. (See Burmese 201-202.)

BURMESE COMPOSITION AND CONVERSATION. (See Burmese 203-204.)

ADVANCED BURMESE READING. (See Burmese 301-302.)

ELEMENTARY INDONESIAN. (See Indonesian 101-102.)

INDONESIAN READING. (See Indonesian 201-202.)

INDONESIAN COMPOSITION AND CONVERSATION. (See Indonesian 203-204.)

READINGS IN INDONESIAN AND MALAY. (See Indonesian 301-302.)

ADVANCED INDONESIAN CONVERSATION AND COMPOSITION. (See Indonesian 303.)

ADVANCED READINGS IN INDONESIAN AND MALAY LITERATURE. (See Indonesian 305.)

[LINGUISTIC STRUCTURE OF INDONESIAN. (See Indonesian 403.) Not offered in 1963-1964.]

ELEMENTARY JAVANESE. (See Javanese 121-122.)

ELEMENTARY THAI. (See Thai 101-102.)

THAI READING. (See Thai 201-202.)

THAI COMPOSITION AND CONVERSATION. (See Thai 203-204.)

ADVANCED THAI. (See Thai 301-302.)

THAI LITERATURE. (See Thai 305-306.)

ELEMENTARY VIETNAMESE. (See Vietnamese 101-102.)

VIETNAMESE READING. (See Vietnamese 201-202.)

VIETNAMESE COMPOSITION AND CONVERSATION. (See Vietnamese 203-204.)

ADVANCED VIETNAMESE. (See Vietnamese 301-302.)

ASTRONOMY

Mr. T. GOLD, Chairman; Messrs. M. O. HARWIT, M. R. KUNDU, E. E. SALPETER, R. W. SHAW.

For a major in astronomy the following courses must be completed: (1) in astronomy, Courses 201-202, twelve hours of interpretational astronomy, four hours of observational astronomy, eight hours of departmental electives; (2) in related subjects at least sixteen hours at the 300 level or above selected from approved courses in chemistry, geology, mathematics (exclusive of the calculus), and physics. Students who anticipate a major in astronomy should complete Astronomy 201-202 and the calculus not later than the sophomore year. Graduate students must register with the instructor in charge of the desired course on regular registration days at the beginning of each term.

Astronomy 201-202 may be used in partial satisfaction of the requirements of Distribution I.

201. INTRODUCTION TO ASTRONOMY. Fall term. Credit four hours. Lectures, M W F 9. Laboratory, M T Th F 2-4:30. Mr. SHAW.

Fundamentals of astronomy with emphasis on the planets, moon, comets, meteors, the solar system as a unit. Telescopes. Night observation at Fiertes Observatory. Intended as a base for those who major in astronomy and as a survey for students from other fields.

202. INTRODUCTION TO ASTRONOMY. Spring term. Credit four hours. Lectures, M W F 9. Laboratory, M T Th F 2-4:30. Mr. SHAW.

Fundamentals of astronomy with emphasis on the sun, stars, the galaxy, the sidereal universe. Spectroscopy. Night observation at Fiertes Observatory. Suitable for major students and as a survey for students from other fields. (Astronomy 201 is not prerequisite to Astronomy 202.)

OBSERVATIONAL ASTRONOMY

305. CELESTIAL NAVIGATION. Spring term. Credit three hours. M W F 11. Mr. SHAW.

Celestial and space navigation. Theory of position determination on sea, in air, and in space. Air and Nautical Almanacs. Day and night practice with marine, standard bubble, and automatic sextants. Chart work.

[310. ASTROMETRY. Spring term. Credit four hours. Prerequisites, Astronomy 201-202 and the consent of the instructor. Hours to be arranged. Mr. SHAW. Not offered in 1963-1964.]

315. ASTRONOMICAL SPECTROSCOPY. Spring term. Credit four hours. Prerequisites, Astronomy 201-202 and the consent of the instructor. Hours to be arranged. Mr. SHAW.

Fundamental theory of atomic and molecular spectra with applications to astronomical problems. Spectroscopic instruments, spectrophotometry, wave-length and radial velocity measurements, orbits of spectroscopic binaries, and classification of stellar spectra. Practice in spectroscopic measurements.

[410. GEODETIC ASTRONOMY. Spring term. Credit four hours. Prerequisite, consent of the instructor. Hours to be arranged. Mr. SHAW. Not offered in 1963-1964.]

INTERPRETATIONAL ASTRONOMY

320. ORIGIN OF THE SOLAR SYSTEM. Fall term. Credit four hours. Prerequisites, Astronomy 201, the calculus, and the consent of the instructor. M W F 11. Mr. SHAW.

Analysis of proposed modes of origin and evolution of the solar system. Planetary structure. Age determination. Literature study and preparation of research papers.

330. INTRODUCTION TO ASTROPHYSICS. Fall term. Credit four hours. Preferred prerequisites, the calculus, Physics 207-208, Astronomy 202 or consent of the instructor. M W F 12. Mr. HARWIT.

Solar and stellar physics. Application of radiation theory to astronomical problems. Stellar atmospheres and interiors. Binary, variable, and peculiar stars. Galactic structure and interstellar matter.

340. SPECIAL TOPICS IN ASTRONOMY. Fall or spring term. Credit two or four hours. Prerequisite, consent of the instructor. Staff.

Qualified students may receive instruction in selected topics according to their need and preparation. Topics occasionally given formally include comets and meteors, binary stars, gaseous nebulae, and interstellar matter.

[430. STELLAR STRUCTURE. Spring term. Credit four hours. Prerequisites, Astronomy 330 or graduate status and the consent of the instructor. Staff. Not offered in 1963-1964.]

440. THEORETICAL ASTRONOMY. Fall or spring term. Credit two or four hours. Prerequisite, consent of the instructor. Staff.

450. TECHNIQUES OF ASTROPHYSICS. Fall or spring term. Credit two or four hours. Prerequisite, consent of the instructor. Staff.

510. COSMOLOGY AND EVOLUTION. Spring term. Credit three hours. Open to graduate students with the consent of the instructor. Hours to be arranged. Messrs. GOLD and HARWIT.

Special and general theory of relativity. Cosmological models, red shift of extragalactic nebulae, evolution of stars and galaxies.

520. RADIO ASTRONOMY. Fall term. Credit three hours. Prerequisites, Astronomy 330 or graduate status and consent of the instructor. Hours to be arranged. Messrs. GOLD and KUNDU.

A survey of radio astronomical techniques and solar system radio astronomical studies. Plasma physics near the sun, in space, and near the earth.

521. RADIO ASTRONOMY. Spring term. Credit three hours. Prerequisites, Astronomy 330, or graduate status and consent of the instructor. Hours to be arranged. Messrs. GOLD and KUNDU.

A survey of astronomical problems to which radio techniques have been applied. Observa-

tional characteristics and current theories for the explanation of radio emission from the galaxy, discrete sources, and external galaxies. The hydrogen line survey of the galaxy and extragalactic surveys. The relation between radio astronomy and theories of the origin of cosmic rays.

530. MAGNETOHYDRODYNAMICAL PROCESSES IN THE SOLAR SYSTEM. Fall term.

Credit three hours. Hours to be arranged. Open to graduate students with the consent of the instructor. Mr. GOLD and STAFF.

Solar physics, cosmic ray variations, theories of aurorae, magnetic storms, radiation belts.

540. ADVANCED STUDY AND RESEARCH. Either term. Credit two or four hours. Prerequisite, advanced standing in astronomy and consent of the instructor. Staff.

BIOLOGY

No major is offered in biology. The following course may be presented in satisfaction of the group requirement in biological science under Distribution I. A student may qualify for advanced placement and credit in biology by superior performance on the Advanced Placement Examination in biology or on a special departmental placement examination to be given at entrance to students who present evidence of particularly thorough training in the subject.

GENERAL BIOLOGY (Biology 1-2, College of Agriculture). Throughout the year. Credit three hours a term. First semester with a grade of 50 or higher is prerequisite to the second, unless special permission to register is obtained from the instructor. Not open to students who have had both Zoology 101-102 and Botany 1-2. Lectures, M W 8, 10, or 11. Laboratory, M T W Th or F 2-4:30, or Th F S 8-10:30, or T Th F 10-12:30, or S 9-11:30. Mr. KEETON and Assistants.

Primarily for students who do not plan to major in a biological science, but open to others as well (the course meets the prerequisite requirements of such subjects as

genetics, cytology, advanced botany, some zoology courses, etc.). The work is not divided in the traditional way into a unit on animals and a unit on plants, nor is it based on a phylum-by-phylum survey; instead, attention is focused on a series of topics central to modern biology, and these are explored in some depth. The aim is to give students an insight into the principles of biological science and into the methods employed in its study. More specifically, the course deals with the organization, integration, and maintenance of living organisms as energy systems, and with their reproduction, heredity, behavior, and interactions; each topic is interpreted in the light of modern evolutionary theory.

BOTANY

Mr. G. C. KENT, *Acting Head*; Messrs. H. P. BANKS, D. W. BIERHORST, R. T. CLAUSEN, J. M. KINGSBURY, F. C. STEWARD, J. F. THOMPSON, C. H. UHL.

The science of botany is concerned with the structure, functions, and relationships of plants and their contribution to our society. The purpose of the major in botany is to qualify a student for advanced work in botany or in a related field such as plant genetics, plant breeding, forestry, plant pathology, or horticulture; and to develop a sufficiently broad understanding of botanical science to fit a student to take advantage of opportunities in the field. Graduate work in botany is recommended for persons planning to enter the botanical profession.

Ordinarily a student will be accepted as a major in botany if he has passed, at a satisfactory level of proficiency, one year of college botany or biology, and of chemistry.

Students majoring in botany are required to take Botany 31, 117, 123, 124 — 16 hours. In addition each student must select 16 hours from the following list: Botany 112, 113, 118, 126, 127, 224, 230, 231, 232, 233; Chemistry 303, 305; Biochemistry 101, 102; Plant Pathology 121; Plant Breeding 101.

Qualified students may register in a Special Problems Course for informal study, or optional problems, under the direction of the professor of their choice.

The science requirement in Distribution I may be satisfied with Botany 1-2.

1-2. INTRODUCTORY BOTANY. Throughout the year but may be entered in the spring term. Credit three hours a term. If taken after general biology, credit two hours a term. Lectures, T Th 9 or 11. Laboratory, M T W Th or F 2-4:30; T 10-12:30; S 8-10:30; or S 9-11:30. Mr. BANKS and Assistants.

Designed to give general students an understanding of the growth and evolution of plants and their role in nature. Provides the basic knowledge necessary for those who intend to specialize in some aspect of plant science.

Botany 1 is devoted to a study of growth in the flowering plants, with emphasis placed on structure, function, and reproduction.

Botany 2 is concerned with the phyla of plants, with representative life cycles, and with a consideration of the importance of various groups in the study of biological principles. The study of the evolution of the groups of plants is based on genetical and environmental mechanisms that control it. The classification and ecology of plants is introduced in several laboratory periods spent in the field.

The scientific process, the growth of botanical knowledge, botanical principles and, particularly, the necessity of changing interpretations as new information is acquired are introduced throughout the course.

For a complete description of the following courses in botany see the *Announcement of the College of Agriculture*. In satisfaction of degree requirements these courses in botany are counted as courses in the College of Arts and Sciences.

31. PLANT PHYSIOLOGY. Either term. Credit four hours.

112. FRESHWATER ALGAE. Fall term. Credit three hours.

[113. MARINE ALGAE AND THE BRYOPHYTES. Spring term. Credit three hours. Not given in 1963-1964.]

117. TAXONOMY OF VASCULAR PLANTS. Fall term. Credit four hours.

118. TAXONOMY AND ECOLOGY OF VASCULAR PLANTS, ADVANCED COURSE. Spring term. Credit four hours. (Will not be given in spring, 1965.)

123. PLANT ANATOMY. Fall term. Credit four hours.

124. CYTOLOGY. Fall term. Credit four hours.

125. MICROTECHNIQUE. Spring term. Credit two hours.

126. MORPHOLOGY OF VASCULAR PLANTS. Spring term. Credit four hours a term.

[127. MORPHOLOGY OF VASCULAR PLANTS. Spring term. Credit four hours a term. Not given in 1963-1964.]

171. SPECIAL PROBLEMS IN GENERAL BOTANY, ANATOMY, CYTOLOGY, MORPHOLOGY, PALEOBOTANY, PHYCOLOGY, PHYSIOLOGY, TAXONOMY, AND ECOLOGY. Throughout the year. Credit not less than two hours a term.

217. SEMINAR IN TAXONOMY AND ECOLOGY OF VASCULAR PLANTS. Fall term. Credit one hour.

224. CYTOGENETICS. Spring term. Credit three hours.

230-231. PLANT PHYSIOLOGY, ADVANCED LECTURE COURSE. Throughout the year. Credit three hours a term.

232-233. PLANT PHYSIOLOGY, ADVANCED LABORATORY COURSE. Throughout the year. Credit three hours a term.

239. SEMINAR IN PLANT PHYSIOLOGY. Fall and spring terms.

CHEMISTRY

Mr. HAROLD A. SCHERAGA, *Chairman*; MESSRS. ANDREAS C. ALBRECHT, SIMON H. BAUER, ALFRED T. BLUMQUIST, THOMAS C. BRUCE, W. DONALD COOKE, DONALD G. FARNUM, ROBERT C. FAY, JACK FREED, DAVID H. GESKE, MELVIN J. GOLDSTEIN, JAMES L. HOARD, JOHN R. JOHNSON, ALBERT W. LAUBENGAYER, JOHN E. LIND, FRANKLIN A. LONG, JERROLD MEINWALD, WILLIAM T. MILLER, GEORGE H. MORRISON, ROBERT A. PLANE, RICHARD F. PORTER, L. TODD REYNOLDS, MICHELL J. SIENKO, BENJAMIN WIDOM, CHARLES F. WILCOX, BERNHARD WUNDERLICH, JEROLD J. ZUCKERMAN.

Prerequisites to admission to a major in chemistry are: (1) Chemistry 103-104 and 205, or 107-108, or preferably 115-116; (2) Chemistry 236; (3) Physics 207-208; (4) Mathematics 111, 112, and 113, or the equivalent. A student is not encouraged to undertake a major in chemistry unless his performance in the above courses gives evidence of capacity to do satisfactory work

at a more advanced level. At least two-thirds of the courses in chemistry must be submitted with a grade of 75 or higher.

For a major in chemistry, the following courses must be completed: (1) Chemistry 357-358, 387-388, 410, and one of the following: 426, 456, 457, or 481; (2) in addition, two courses selected from the following list: Chemistry 411, 426, 456, 457, 481, 497, 498, any graduate level course in chemistry, Biochemistry 201, 202, Zoology 321, 322, physics beyond Physics 208, mathematics beyond Math 113; (3) Russian 101, or preferably German 101, unless two units of either language have been offered for entrance. In exceptional cases, students may, on petition to the Department, substitute French or Latin.

A major in chemistry permits considerable flexibility in the detailed planning of course programs, since it is presumed that the student will devote about half of the total course hours to subjects other than the physical sciences. Nevertheless, it is essential that the sequence of chemistry courses be started as early as possible. 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 register for mathematics, general chemistry, English, and foreign language. In the second year, he should complete calculus, take physics, organic chemistry, analytical chemistry, and a course in Distribution I. Physical chemistry should be taken in the third year. Advanced courses in physics and mathematics are recommended as electives for students who intend to continue for an advanced degree in chemistry.

The Honors program in chemistry offers the superior student an opportunity to do informal study in seminars and gain experience in research during his senior year. It is particularly recommended to those who plan graduate work in chemistry. 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 80 and permission of the Department. Prospective candidates for Honors should discuss their plans with their advisers by April 15 of their junior year. Candidates for Honors must complete Chemistry 497 and 498.

Distribution II for students majoring in chemistry may not be fulfilled in mathematics or natural science.

The Distribution I requirement in science for students in the College of Arts and Sciences can be fulfilled by Chemistry 103-104, 107-108, or 115-116.

For nonchemistry majors who wish to fulfill their Distribution II in chemistry, the following chemistry sequences are suggested: (1) 205, 357, and 358; (2) 236, 357, and 358; (3) 205, 236, and 353-355; (4) 380, 389, 390, and 578; (5) 353-355, 389, 390, and 578.

Students and members of the teaching staff are required to wear either prescription glasses or safety glasses in all chemistry laboratories. All courses listed below, except Chemistry 353 (fall term) and 357-358 will be given in the Baker Laboratory of Chemistry.

General identification of the courses listed below is as follows:

Inorganic: 410, 411, 421, 505-506, 515-516.

Analytical: 236, 426, 433, 525, 527.

Organic: 353, 355, 356, 357-358, 456, 457, 461, 465-466, 565, 566, 570, 572, 574.

Physical and Theoretical: 276, 285-286, 380, 387-388, 389-390, 474, 477, 481, 578, 580, 586, 589, 593, 595, 596, 598.

Molecular Biology: 568, 572, 577, 582, 586.

103-104. INTRODUCTION TO CHEMISTRY. Throughout the year. Credit three hours a term. Chemistry 103 is prerequisite to Chemistry 104. Recommended for students who have not had high school chemistry and for those desiring a more elementary course than Chemistry 107-108. If passed with a grade of 70, this course serves as prerequisite

for Chemistry 205 or Chemistry 353. Lectures, M F 10 or 11. Combined discussion-laboratory period, T W or Th 8-11, M T W Th or F 1:40-4:30. MESSRS. PORTER, GOLDSTEIN, and Assistants.

An introduction to chemistry with emphasis on the important principles and facts of inorganic and organic chemistry.

Note: Entering students exceptionally well prepared in chemistry may receive advanced credit for Chemistry 103-104 by demonstrating competence in the high school advanced standing examination of the College Entrance Examination Board, or in the advanced standing examination given at Cornell on the Tuesday before classes start in the fall. Application for this latter examination should be made to the Department of Chemistry no later than registration day.

107-108. GENERAL CHEMISTRY. Throughout the year. Credit three hours fall term and four hours spring term. Prerequisite, high

school chemistry; 107 is prerequisite to 108. Recommended for those students who will take further courses in chemistry but do not

intend to specialize in chemistry or closely related fields. Enrollment limited to 700. Lectures, T Th 9 or 10. Combined discussion-laboratory period, M W F or S 8-11, M T W Th or F 1:40-4:30. In spring term, one additional recitation hour as arranged. Messrs. PLANE, FAY, and Assistants.

The important chemical principles and facts are covered, with considerable attention given to the quantitative aspects and to the techniques which are important for further work in chemistry. Second-term laboratory includes a simplified scheme of qualitative analysis.

115-116. GENERAL CHEMISTRY AND INORGANIC QUALITATIVE ANALYSIS. Throughout the year. Credit four hours a term. Prerequisite, high school chemistry at a grade of 85 or higher; Chemistry 115 is prerequisite to Chemistry 116. Recommended for students who intend to specialize in chemistry or in closely related fields. Students without good mathematical competence are advised not to take this course. Enrollment limited to 350. Fall term: lectures, M W F 8; one three-hour combined discussion-laboratory period, T or Th 8-11, W or F 10-1, or W or F 1:40-4:30. Spring term: Lectures, M W 8; two three-hour combined discussion-laboratory periods, T Th 8-11, W F 10-1, or W F 1:40-4:30. Messrs. LAUBENGAYER, ZUCKERMAN, and Assistants.

A general study of the laws and concepts of chemistry based upon the more common elements, and application of the theory of chemical equilibrium to the properties and reactions of ions of the common elements and their separation and detection in solution.

205. QUALITATIVE INORGANIC ANALYSIS AND IONIC EQUILIBRIUM. Fall term. Credit four hours. Prerequisite, Chemistry 104 with a grade of 70 or better, or Advanced Placement in Chemistry. Lectures, M W 12. Laboratory, T Th 1:40-4:30 or T Th 8-11. Mr. ZUCKERMAN and Assistants.

Application of the theory of chemical equilibrium to the properties and reactions of the ions of selected elements and the separation and detection of these ions in solution.

236. INTRODUCTORY QUANTITATIVE ANALYSIS. Either term. Credit four hours. Prerequisite, Chemistry 205 or 108 or 116. Required of candidates for the degree of A.B. with a major in chemistry. Lectures, M W 10. Laboratory, M W or T Th 1:40-4:30 or F 1:40-4:30 and S 9-12. Messrs. MORRISON, GESKE, and Assistants.

A study of the fundamental principles of quantitative chemistry. Laboratory experiments are designed to illustrate basic principles and practice of quantitative procedures.

276. INTRODUCTION TO PHYSICAL CHEMISTRY. Spring term. Credit three hours. Prerequisites, Chemistry 104 or 108 or 116, Mathematics 293, and Physics 223 or 225 or 227. For engineering students. M W F 9. Mr. WUNDERLICH.

A brief survey of physical chemistry.

285-286. INTRODUCTORY PHYSICAL CHEMISTRY. Throughout the year. Credit five hours a term. Prerequisites, Chemistry 108 or 116, Mathematics 192, Physics 123, or consent of instructor. For students in engineering, not open to Arts and Sciences students. Lectures, M W F 9. Laboratories: fall term, M 1:40-4:30 and T 10-12:50 or W Th 1:40-4:30 or S 8-1; spring term, M T 1:40-4:30 or W Th 1:40-4:30 or F 1:40-4:30 and either S 8-10:50 or S 10-12:50. Messrs. LIND, LONG, and Assistants.

The lectures will give a systematic treatment of the fundamental principles of physical chemistry. The laboratory will deal with the experimental aspects of the subject and also develop the needed skills in quantitative chemical analysis.

353. ELEMENTARY ORGANIC CHEMISTRY. Either term. Credit four hours. Prerequisite, Chemistry 104 at a grade of 70, or 108, or 116. Enrollment limited in fall term. Primarily for students in the premedical and biological curricula. Chemistry 355 must be taken with Chemistry 353. Lectures, M W F S 11. Messrs. MILLER and BLUMQUIST.

An integrated study of aliphatic and aromatic organic compounds, their occurrence, methods of preparation, reactions, and uses. The relationship of organic chemistry to the biological sciences is stressed.

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. An additional two hours credit in laboratory may be obtained by taking Chemistry 356.

355. ELEMENTARY ORGANIC LABORATORY. Either term. Credit two hours. Must be taken with Chemistry 353. Laboratory, M W or T Th 2-4:30. Messrs. FARNUM, WILCOX, and Assistants.

Laboratory experiments on the preparation and reactions of typical aliphatic and aromatic organic compounds.

356. ELEMENTARY ORGANIC LABORATORY. Spring term. Credit two hours. Prerequisite, Chemistry 353-355. Laboratory lecture for all sections, S 8. Laboratory, T Th

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1:40-4:30 or F 1:40-4:30 and S 9-12. Mr. FARNUM and Assistants.

A continuation of Chemistry 355.

357-358. INTRODUCTORY ORGANIC CHEMISTRY. Throughout the year. Credit five hours a term. Prerequisite, Chemistry 108, or 116, or 205. Chemistry 357 is prerequisite to Chemistry 358. Required of candidates for the degree of B.Ch.E. and A.B. with a major in chemistry. Enrollment limited. Lectures, M W F 9. Laboratory lecture for all sections, S 8. Laboratory, T Th 1:40-4:30 or F 1:40-4:30 and S 9-12 (either term) or T Th 8-11 (fall term only). Messrs. JOHNSON, FARNUM, and Assistants.

A systematic study of the more important classes of carbon compounds, reactions of their functional groups, methods of synthesis, relations and uses. Laboratory experiments will be carried out on the preparation of typical organic compounds, their properties, reactions, and relations.

380. CHEMICAL BONDING AND PROPERTIES OF ORGANIC MOLECULES. Spring term. Credit three hours. Prerequisite, Chemistry 108, or 116, or 205. Lectures, T Th S 9. Mr. WILCOX.

Primarily for students who have had no course in organic chemistry but a good background in physics.

387-388. INTRODUCTORY PHYSICAL CHEMISTRY. Throughout the year. Credit five hours a term. Prerequisites, Chemistry 236, Mathematics 113 or 221, Physics 208, or consent of instructor. Chemistry 387 is prerequisite for Chemistry 388. Required of candidates for the degree of A.B. with a major in chemistry. Lectures, M W F 10. Laboratory: fall term, T 1:40-4:30 or F 1:40-4:30; spring term, M T 1:40-4:30 or W F 1:40-4:30 or S 8-1. Laboratory lecture (fall term only), Th 12. Examinations, Th 7:30 p.m. Mr. BAUER.

A study of the more fundamental principles of physical chemistry from the standpoint of the laws of thermodynamics and of the kinetic theory. The laboratory will consist of experiments illustrating laboratory techniques as well as experiments in classical and modern physical chemistry.

389-390. INTRODUCTORY PHYSICAL CHEMISTRY. Throughout the year. Credit four hours. Prerequisites, same as Chemistry 387 and 388, or consent of instructor. Chemistry 389 is prerequisite to Chemistry 390. Lectures, M W F 10. Mr. BAUER.

The lecture portion of Chemistry 387-388.

410. INORGANIC CHEMISTRY. Spring term.

Credit four hours. Prerequisite, Chemistry 286 or 387 or consent of instructor. Chemistry majors are advised to take this course in their junior year. Lectures, M W F 9. Mr. PLANE.

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 or parallel course, Chemistry 387, or consent of the instructor. Hours to be arranged. Mr. REYNOLDS.

Laboratory experiments illustrating the techniques and scope of modern inorganic chemistry.

421. INTRODUCTION TO INORGANIC RESEARCH. Either term. Credit two or four hours. Prerequisites, Chemistry 387-388 or 285-286 at an average of 80 or better and consent of the instructor. Hours to be arranged. Messrs. FAY, LAUBENGAYER, PLANE, REYNOLDS, and ZUCKERMAN.

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.

426. INSTRUMENTAL ANALYSIS. Spring term. Credit four hours. Prerequisite, Chemistry 285 or 387 or consent of instructor. Enrollment is limited. Laboratory may be taken separately by graduate students. Lectures, T Th 10. Laboratory, one afternoon a week, to be arranged. Mr. GESKE and Assistants.

A discussion of the broad aspects of modern analytical chemistry, including ultraviolet, infrared and NMR spectroscopy, chromatography, electrometric methods, and radiochemical techniques.

433. INTRODUCTION TO ANALYTICAL RESEARCH. Either term. Credit two or four hours. Prerequisite, Chemistry 388 with an average of 80 or better or consent of instructor. Hours to be arranged. Messrs. COOKE, GESKE, and MORRISON.

Informal research in the field of analytical chemistry involving both laboratory and library work.

456. IDENTIFICATION OF ORGANIC COMPOUNDS. Fall term. Credit four hours. Prerequisite, Chemistry 358. Lectures, T Th 8. Laboratory, T Th 2-4:30, or F 2-4:30 and S 10-12:30. Mr. WILCOX and Assistants.

Laboratory experiments in the separation of mixtures of organic compounds and the ap-

plication of the classification reactions of organic chemistry to the identification of pure organic substances.

457. ADVANCED ORGANIC-ANALYTICAL LABORATORY. Spring term. Credit four hours. Primarily for seniors and graduate students in chemistry. Prerequisites, Chemistry 358 and Chemistry 426 or concurrent registration in 525 or consent of the instructor. Discussion, T Th 8. Laboratory, three of the following periods: T Th 9-11:30, M T W Th F 1:40-4:30, S 10-12:30. Messrs. COOKE, FARNUM, GESKE, and Assistants.

Laboratory problems illustrating the applications of instrumental analytical techniques to organic research.

461. INTRODUCTION TO ORGANIC RESEARCH. Either term. Credit two to four hours. Prerequisites, 456 or 457 and consent of instructor. Primarily for seniors and graduate students as preparation for advanced and independent work. Enrollment limited for undergraduates to those having a record of 80 or better in prerequisite courses. Laboratory and weekly discussion meeting, hours to be arranged. Messrs. BLOMQUIST, BRUCE, FARNUM, GOLDSTEIN, JOHNSON, MEINWALD, MILLER, and WILCOX.

465-466. ORGANIC CHEMISTRY. Throughout the year. Credit four hours a term. Prerequisite, Chemistry 358. Chemistry 465 is prerequisite to 466. Primarily for upperclass and graduate students. Enrollment limited for undergraduates to those having a record of 80 or better in previous courses in organic chemistry. Lectures, M W F 12. Discussion, to be arranged. Mr. MEINWALD.

Fall term: structural theory; resonance; methods of structure determination; conformational analysis and other aspects of stereochemistry; introduction to reaction mechanisms; synthesis and characteristic reactions of hydrocarbons. Spring term: synthesis and reactions of the principal classes of organic compounds, with an emphasis on newer developments; the application of mechanistic reasoning to synthetic problems; multi-state syntheses.

[474. PHYSICAL CHEMISTRY OF HIGH POLYMERS. Spring term. Credit four hours. Prerequisite, Chemistry 286 or 388 or consent of instructor. Primarily for graduate students. Lectures, T Th 8, S 9. Mr. WUNDERLICH. Given in alternate years; not given in 1963-1964.

The physical chemistry of high polymers in the light of modern theories, and the principles underlying quantitative interpretation of structure and properties of substances.]

477. INTRODUCTION TO RESEARCH IN PHYSICAL CHEMISTRY. Credit two to four hours. Prerequisite, Chemistry 388 at an average of 80 or better and consent of instructor. Hours to be arranged. Messrs. BAUER, FREED, HOARD, LIND, LONG, PORTER, SCHERAGA, WIDOM, and WUNDERLICH.

Informal advanced laboratory and library work in physical chemistry, planned individually in consultation with a staff member.

481. ADVANCED PHYSICAL CHEMISTRY. Fall term. Credit four hours. Prerequisite, Chemistry 286 or 388. Lecture, M W F 9. Discussion section to be arranged. Mr. WIDOM.

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.

497-498. HONORS SEMINAR AND RESEARCH. Throughout the year. Credit four hours a term. Prerequisite, admission to the Honors Program. Seminar, W 2. Laboratory hours to be arranged. Messrs. BRUCE and HOARD.

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.

505-506. ADVANCED INORGANIC CHEMISTRY. Throughout the year. Credit four hours a term. Prerequisite or parallel course, Chemistry 387-388 or 285-286, or consent of the instructor. Chemistry 505 is prerequisite to Chemistry 506. Open to upperclassmen and graduate students. Lectures, M W F 11. Messrs. LAUBENGAYER and REYNOLDS.

Theories of atomic structure and chemical bonding are applied systematically to the elements as they appear in the Periodic System, with emphasis on the stereochemistry of inorganic substances.

515-516. SELECTED TOPICS IN ADVANCED INORGANIC CHEMISTRY. Throughout the year. Credit two hours a term. Students may register for either term separately. Prerequisite, Chemistry 388. Lectures, T Th 12. Fall term will not be given in 1963-1964. Spring term topic will be "Inorganic Polymers" and will be given by Mr. LAUBENGAYER.

Detailed consideration is given each term to one or two special topics selected from the field of theoretical and experimental inorganic chemistry. Topics are varied from year to year.

525. ADVANCED ANALYTICAL CHEMISTRY. Fall term. Credit four hours. Prerequisite, Chemistry 286 or 388. For graduate students except by consent of the instructor. Lectures, M W F 8. Mr. COOKE.

The application of molecular spectroscopy to chemical problems. Topics discussed include ultraviolet, infrared, NMR, Raman, and mass spectroscopy.

[527. ADVANCED ANALYTICAL CHEMISTRY. Fall term. Credit four hours. Prerequisite, Chemistry 286 or 388. Primarily for graduate students. Lectures, M W F 8. Mr. GESKE. Given in alternate years; not given in 1963-1964.

An intensive examination of contemporary electroanalytical chemistry, electrode kinetics, voltammetry including polarography, coulometry, and chronopotentiometry. Study of chromatographic separation including gas chromatography. Analytical significance of non-aqueous solutions.]

565. PHYSICAL ORGANIC CHEMISTRY. Fall term. Credit four hours. Prerequisite, Chemistry 465-466 or consent of instructor. Primarily for graduate students. Lectures, T Th S 12. Mr. GOLDSTEIN.

Elucidation and applications of organic reaction mechanisms; quantitative aspects of organic chemistry.

[566. PHYSICAL ORGANIC CHEMISTRY. Spring term. Credit three hours. Prerequisite, Chemistry 565 or consent of instructor. Primarily for graduate students. Lectures, T Th 12. Mr. WILCOX. Not given in 1963-1964.

Quantitative aspects of organic chemistry.]

568. CHEMICAL PATHWAYS IN METABOLISM. Spring term. Credit four hours. Prerequisites, Chemistry 358 and 388, or their equivalents. Primarily for graduate students. Lectures, T Th S 8.

Organic and physical chemical aspects of the mechanisms of processes occurring in the metabolism of living systems. This course forms the chemical basis for the graduate program in molecular biology.

570. SELECTED TOPICS IN ORGANIC CHEMISTRY. Fall term. Credit three hours. Prerequisites, 465-466 or consent of instructor. Primarily for graduate students. Lectures, M W 11. Discussion, F 11. Mr. BLUMQUIST.

Lectures on specialized subjects, and on recent developments in experimental and theoretical organic chemistry.

572. ORGANIC MECHANISMS PERTAINING TO ENZYME CATALYSIS. Spring term.

Credit four hours. Prerequisites, Chemistry 465-466 and a course in general biochemistry. Primarily for graduate students in chemistry and biochemistry. Lectures, M W F 11. Mr. BRUCE.

A consideration of the mechanisms of organic reactions to enzymatic catalysis, hydrolytic reactions, chemical models for co-factors, stereochemistry of biochemical reactions, oxidation-reduction catalysis.

574. CHEMISTRY OF NATURAL PRODUCTS. Spring term. Credit three hours. Prerequisites, Chemistry 456 or 457, and 465-466. Primarily for graduate students. Lectures, T Th 9 and a discussion period to be arranged. Mr. FARNUM.

Particular attention will be devoted to methods of structure determination and synthesis as applied to selected terpenes, steroids, alkaloids, and antibiotics. Given in alternate years.

577. ENZYME KINETICS. Fall term. Credit four hours. Prerequisites, Chemistry 358 and 388, or their equivalents. Primarily for graduate students. Lectures, T Th S 8.

Modern theories and techniques for studying the kinetics of enzymatic and related reactions. A discussion of steady-state and relaxation methods will be included.

578. THERMODYNAMICS. Spring term. Credit four hours. Prerequisite, 286 or 388. Primarily for graduate students. Lectures, T Th S 9, and a discussion period to be arranged. Mr. HOARD.

Development of the general equations of thermodynamics from the first and second laws. Applications to the study of physico-chemical equilibria in gases, liquids, solids, and liquid solutions. Problems.

580. KINETICS OF CHEMICAL REACTIONS. Spring term. Credit four hours. Prerequisites, Chemistry 481 and 578 or consent of instructor. Lectures, M W F 9 and a discussion period to be arranged. Mr. LONG.

A general discussion of rates of reactions, including types of reactions, methods of measurement, theories of reaction rates, applications to problems.

582. SPECIAL TOPICS IN MOLECULAR BIOLOGY. Spring term. Credit four hours. Prerequisite, Chemistry 568 or consent of instructor. Primarily for graduate students. Topics to be announced. Lectures, T Th S 12.

Detailed consideration is given to several special topics selected from recent research activity in the field of molecular biology. Topics are varied from year to year.

586. PHYSICAL CHEMISTRY OF PROTEINS. Spring term. Credit four hours. Prerequisite, Chemistry 286 or 388. Primarily for graduate students. Lectures, M W F 8. Mr. SCHERAGA.

Chemical constitution, molecular weight, and structural basis of proteins; thermodynamic, hydrodynamic, optical, and electrical properties; protein and enzyme reactions.

589. X-RAY CRYSTALLOGRAPHY. Fall term. Credit four hours. Prerequisite, Physics 322 or consent of instructor. M W F 12. Mr. HOARD.

Space groups, reciprocal lattices, three-dimensional diffraction, interpretation of X-ray diffraction data, structure determination by Fourier synthesis. Given in alternate years.

[593. INTRODUCTION TO QUANTUM MECHANICS. Fall term. Credit four hours. Prerequisite, consent of instructor. Primarily for graduate students. Lectures, M W F 10. Messrs. ALBRECHT and WIDOM. Given in alternate years, not given in 1963-1964.

Elementary presentation of the fundamentals of quantum mechanics.]

595. STATISTICAL MECHANICS. Fall term. Credit four hours. Prerequisite, Chemistry 593 or equivalent is desirable but not required. Primarily for graduate students. Lectures, M W F 11. Mr. WIDOM.

Ensembles and partition functions. Thermodynamic properties of ideal gases and crystals. Third law of thermodynamics, equilibrium constants, vapor pressures. Imperfect gases and virial coefficients. Radial distribution functions. Lattice statistics and phase transitions. Bose-Einstein and Fermi-Dirac ideal gases. Maxwell theory of viscosity and heat conductivity. Given in alternate years.

[596. QUANTUM MECHANICS OF VALENCE. Spring term. Credit four hours. Prerequisite, Chemistry 593 or its equivalent. Primarily for graduate students. Lectures, M W F 9. Given in alternate years; not given in 1963-1964.]

[598. MOLECULAR SPECTRA. Spring term. Credit four hours. Prerequisite, consent of instructor. Primarily for graduate students majoring in physical chemistry and physics. Lectures, hours to be arranged. Mr. BAUER. Not offered in 1963-1964.

Description of various types of molecular spectra. The rotational and vibrational spectra of polyatomic molecules (energy levels, normal coordinate treatment, selection rules). Physical methods for structure determination, and empirical relations between molecular structure and molecular constants.]

600. GENERAL CHEMISTRY SEMINAR. Throughout the year. No credit. Th 4:40. A series of talks representative of all fields of current research interest in chemistry, given by advanced graduate students, research associates, faculty members, and distinguished visitors.

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, or physical chemistry. Hours to be arranged. Messrs. WUNDERLICH and ZUCKERMAN. Weekly seminars on contemporary topics prepared and presented by first-year graduate students. Attention given to details of selecting, preparing, and presenting a given topic. Group preparation and participation emphasized.

650-651. GRADUATE SEMINAR IN ORGANIC CHEMISTRY. Throughout the year. No credit. Open to qualified upperclassmen and graduate students. Required of all graduate students majoring in organic chemistry. M 8:00 p.m. Mr. BRUCE.

700. BAKER LECTURES. T Th 11. Spring term: Current Developments in Valence Theory. Professor H. C. Longuet-Higgins, Cambridge University.

THE CLASSICS

MR. GORDON M. KIRKWOOD, *Chairman*; MESSRS. HARRY CAPLAN, JAMES HUTTON, PIERO PUCCI, ISAAC RABINOWITZ, NOEL ROBERTSON, FRIDERICK O. WAAGE.

Those whose major study is in the Classics must complete twenty-four hours of advanced courses in the Department (Greek courses numbered above 201 or Latin courses numbered above 205) and fifteen hours, selected after conference with the adviser, in related subjects. Related subjects for this purpose are ancient history, modern foreign languages and literatures, particularly French, German, and Italian, ancient philosophy, History of Art 301, 321-322, 421, and selected courses in linguistics and literature.

Students whose major study is in the Classics with an emphasis on Latin must include in their programs before graduation Latin 205-206, 315-316, and 317-318. By arranging courses early with the School of Education, they may meet the requirements for the N.Y. State certificate for high school teaching.

Those whose major study is in classical civilization must complete (a) eighteen hours in Latin or Greek; (b) Literature 203-204, and 307, and eight hours selected from the courses listed below under 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; they may include courses listed under classical civilization which have not been used to satisfy requirement (b).

Candidates for the degree of Bachelor of Arts with Honors in Classics or 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. 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 candidates for Honors and who have a cumulative average of 80 or better should consult some member of the Department before preregistering for the second term of the junior year.

The requirement in the humanities under Distribution I may be met with the following courses: Greek 201 and 203, 203 and 301, 301-302, or 303-306; Hebrew 201-202 or 202 and 301; Latin 112 and 205, 205-206, 315-316, or 317-318; but no course may be used for this requirement if it has been used for the language requirement.

GREEK

Note: All Greek courses may count toward upperclass credit.

101. **GREEK FOR BEGINNERS.** Either term. Credit three hours. M W F 12. Fall term. Mr. KIRKWOOD; spring term, Mr. CAPLAN. Introduction to Attic Greek.

103. **ATTIC GREEK.** Either term. Credit three hours. Prerequisite, Greek 101. M W F 12. Fall term, Mr. —; spring term, Mr. ROBERTSON. Continuation of Greek 101.

201. **ATTIC AUTHORS: PLATO, APOLOGY; EURIPIDES, MEDEA.** Either term. Credit three hours. Prerequisite, Greek 103. T Th S 9. Fall term, Mr. ROBERTSON; spring term, Mr. HUTTON.

203. **HOMER.** Either term. Credit three hours. Prerequisite, Greek 201. T Th S 10. Fall term, Mr. KIRKWOOD; spring term, Mr. PUCCI.

209-210. **GREEK COMPOSITION.** Throughout the year. Credit one hour a term. Prerequisite, Greek 103 or the equivalent. Th 2. Mr. —.

301-302. **SOPHOCLES, OEDIPUS REX; ARISTOPHANES, CLOUDS; HERODOTUS.** Throughout the year. Credit four hours a term. Prerequisite, Greek 203. T Th S 9. Fall term, Mr. Pucci; spring term, Mr. KIRKWOOD.

305-306. **LYRIC POETRY; AESCHYLUS; THUCYDIDES; DEMOSTHENES.** Throughout the year. Credit four hours a term. Prerequisite, Greek 301-302. T Th S 9. Fall term, Mr. Pucci; spring term, Mr. KIRKWOOD.

309-310. **ADVANCED GREEK COMPOSITION.** Throughout the year. Credit one hour a term. Prerequisite, Greek 209-210 or the equivalent. W 2. Mr. Pucci.

381-382. **SEMINAR. PINDAR AND CHORAL LYRIC POETRY.** Throughout the year. Credit four hours a term. For graduate students. Th 2-4. Mr. KIRKWOOD.

[390. **GREEK DIALECTS.** Credit two hours. Not offered in 1963-1964.]

400-401. **INDEPENDENT STUDY.** For qualified majors.

LATIN

105-106. **LATIN FOR BEGINNERS.** Throughout the year. Credit three hours a term. T Th S 11. Mr. —.

107. **FRESHMAN COURSE: SELECTIONS FROM CICERO AND CATULLUS.** Fall term. Credit three hours. Prerequisite, Latin 106 or two units of entrance Latin; may also be taken by those seeking "qualification" in Latin. T Th S 9. Mr. —.

A considerable amount of review in the fundamentals of Latin will be included in this course.

108. **FRESHMAN COURSE: VIRGIL, AE-NEID.** Spring term. Credit three hours. Prerequisite, Latin 107 or three units of entrance Latin. T Th S 9. Mr. —.

109. **FRESHMAN COURSE: VIRGIL, AE-NEID.** Fall term. Credit three hours. For students offering three units of entrance Latin. M W F 11. Mr. ROBERTSON. (For the second term of Latin 109, see Latin 112.)

111. **FRESHMAN COURSE: CICERO, DE SENECTUTE; MARTIAL, EPIGRAMS.** Fall term. Credit three hours. Prerequisite, Latin 108 or four units of entrance Latin. M W F 11. Mr. HUTTON.

112. **FRESHMAN COURSE: HORACE, ODES**

AND EPODES. Spring term. Credit three hours. Prerequisite, Latin 109 or 111 or the equivalent. M W F 11. Mr. CAPLAN.

205-206. **TERENCE, ANDRIA; CATULLUS; HORACE, SATIRES AND EPISTLES; VIRGIL, GEORGICS; LIVY.** Throughout the year. Credit three hours a term. Prerequisite, Latin 112 or the equivalent. M W F 10. Mr. Pucci.

221-222. **LATIN COMPOSITION.** Throughout the year. Credit one hour a term. Prerequisite, Latin 112 or special permission. W 2. Mr. ———.

[315-316. **THE GREATER REPUBLICAN WRITERS: PLAUTUS, CICERO, SALLUST, LUCRETIUS.** Throughout the year. Credit four hours a term. Prerequisite, Latin 205-206. Not offered in 1963-1964.]

317-318. **LITERATURE OF THE EARLY EMPIRE: TACITUS, ANNALS; JUVENAL; PLINY'S LETTERS; SENECA, LETTERS AND TRAGEDIES.** Throughout the year. Credit four hours a term. Prerequisite, Latin 205-206. M W F 10. Fall term, Mr. HUTTON; spring term, Mr. ROBERTSON.

321-322. **LATIN COMPOSITION.** Advanced course. Credit one hour a term. For undergraduates who have completed Latin 221-222 and for graduate students. M 2. Mr. ———.

[347. **HISTORY OF THE LATIN LANGUAGE.** Fall term. Credit two hours. For upperclassmen and graduate students. Not offered in 1963-1964.]

[350. **COMPARATIVE GRAMMAR OF GREEK AND LATIN.** Spring term. Credit two hours. For upperclassmen and graduate students. Not offered in 1963-1964.]

[369. **MEDIEVAL LATIN LITERATURE.** Spring term. Credit four hours. Prerequisite, three years of high school Latin or the equivalent. Not offered in 1963-1964.]

381-382. **SEMINAR: LATIN ELEGIAC POETS.** Throughout the year. Credit four hours a term. For graduate students. W 2-4. Mr. Pucci.

[390. **ITALIC DIALECTS.** Fall term. Credit two hours. For graduate students. Not offered in 1963-1964.]

451-452. **INDEPENDENT STUDY.** For qualified majors.

HONORS COURSES

370. **HONORS COURSE.** Spring term. Credit four hours. To be taken in the junior year.

A program of readings and conferences centered in an author or a topic to be announced before the beginning of the term.

371. **HONORS COURSE.** Fall term. Credit four hours. To be taken in the senior year. 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 371. Topics must be approved by the Honors adviser at the end of the first term of the senior year.

CLASSICAL CIVILIZATION

408. **CLASSICAL RHETORIC AND ORATORY.** Spring term. Credit four hours. Primarily for graduate students. M 2-4. Mr. CAPLAN.

[410. **LATIN AND GREEK ELEMENTS OF THE ENGLISH LANGUAGE.** Credit two hours. Not offered in 1963-1964.]

ENGLISH TRANSLATIONS OF GREEK AND LATIN CLASSICS. (See Literature 203-204.)

FOUNDATIONS OF WESTERN THOUGHT. (See Literature 307.)

HUMANISM AND THE RENAISSANCE. (See Literature 314.)

PRINCIPLES OF LITERARY CRITICISM. (See Literature 401-402.)

CLASSIC MYTHS. (See Literature 218.)

ANCIENT HISTORY. (See History 301-302.)

GREEK HISTORY. (See History 432.)

THE HELLENISTIC AGE. (See History 434.)

THE ROMAN REPUBLIC. (See History 431.)

THE ROMAN EMPIRE. (See History 433.)

INTRODUCTION TO ART. (See History of Art 201-202.)

ART OF THE ANCIENT WORLD. (See History of Art 301.)

GREEK SCULPTURE. (See History of Art 321.)

ART OF THE ROMAN EMPIRE. (See History of Art 322.)

ARCHAEOLOGY. (See History of Art 421.)

HISTORY OF PHILOSOPHY.

HEBREW

Note: All Hebrew courses may count toward upperclass credit.

101-102. ELEMENTARY CLASSICAL HEBREW. Throughout the year. Credit three hours a term. The first term is prerequisite to the second term. M W F 11. Mr. RABINOWITZ.

201-202. CLASSICAL HEBREW PROSE AND POETRY. Throughout the year. Credit three hours a term. Prerequisite, Hebrew 102 or

consent of the instructor. M W F 2. Mr. RABINOWITZ.

Selected readings in the historical and prophetic books of the Hebrew Old Testament.

301. POSTBIBLICAL HEBREW TEXTS. Either term. Credit four hours. Prerequisite, Hebrew 202 and consent of the instructor. Hours are to be arranged. Mr. RABINOWITZ.

Reading and interpretation of early rabbinic and medieval Hebrew texts.

THE LITERATURE OF THE OLD TESTAMENT. (See Literature 205-206.)

ECONOMICS

Mr. A. E. KAHN, *Chairman*; Messrs. G. P. ADAMS, JR., S. E. BERKI, M. G. CLARK, M. A. COPELAND, M. G. DE CHAZEAU, T. E. DAVIS, D. F. DOWD, L. M. FALKSON, F. H. GOLAY, G. H. HILDEBRAND, J. G. B. HUTCHINS, R. W. KILPATRICK, T. C. LIU, R. E. MONTGOMERY, CHANDLER MORSE, D. E. NOVACK, P. M. O'LEARY, R. T. SELDEN, G. J. STALLER, B. P. STIGUM.

Students wishing to major in economics must have completed both *Economics 103* and *Economics 104* and, moreover, must have averaged at least 75 in these two courses. Students who have completed only *Economics 103* may be provisionally accepted, but only if they have obtained a grade of 80 or better. Freshmen intending to major in economics are advised to begin the course sequence, *Economics 103-104*, no later than their second term in residence. Prospective majors are advised to consider as possible electives *Principles of Accounting (Business and Public Administration 110S)*, *Introductory Statistics (Agricultural Economics 111)* and some work in calculus. These courses will contribute materially to preparation for advanced work in economics. Students proposing to major in economics should report to the secretary of the Department with a transcript of courses.

To complete the major, twenty-eight hours of economics courses in addition to *Economics 103-104* must be completed, including *Economics 311* and *312*. In addition, majors in economics will be expected to complete a minimum of three advanced courses in subjects related to economics, selected with the approval of major advisers from the offerings of the Departments of American Studies, Anthropology, Asian Studies, Government, History, Mathematics, Philosophy, (Social) Psychology, and Sociology. Prospective majors should therefore anticipate any prerequisites these advanced courses may require, and complete them in their freshman or sophomore year. Programs of related subjects should complement programs of courses in economics, and both must be arranged in consultation with advisers.

Candidates for the degree of Bachelor of Arts with Honors in Economics will enroll in the Honors seminar. They will be expected to complete thirty-two hours of advanced courses in economics, including the Honors seminar, and all courses required of majors.

Students seeking admission to the Honors seminar should consult their advisers not later than November 1 of their junior year. Application will not normally be considered from students whose cumulative average is less than 80 in both their general studies and their courses in economics.

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 courses in economics at the end of their senior year.

The social sciences requirement is satisfied by *Economics 103-104* or *Economics 201-202*.

I. INTRODUCTORY

103. MODERN ECONOMIC SOCIETY. Either term. Credit three hours. Fall term: large lectures, M W 9 (Mr. Novack), T Th 9 (Mr. Dowd), plus additional discussion sections (scheduled throughout the week); independent sections, M W F 8, 11, 12; T Th S 8, 10, 11. Spring term: large lecture, T Th 8

(Mr. GOLAY), plus additional discussion sections (scheduled throughout the week); independent sections, M W F 8, 9, 10, 11; T Th S 8, 11.

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.

104. MODERN ECONOMIC SOCIETY. Either term. Credit three hours. Fall term: large lecture, M W 8, plus additional discussion sections (scheduled throughout the week); independent sections, M W F 9, 11; T Th S 8, 9, 10, 11. Spring term: large lectures, M W 9, T Th 9, plus additional discussion sections (scheduled throughout the week). Independent sections, M W F 8, 11, 12; T Th S 8, 10, 11. Honors sections: fall term, M W 2-3:15; spring term, M W 2-3:15, T Th 2-3:15. Messrs. DAVIS, HILDEBRAND, KAHN, and Assistants.

Economics 104, a continuation of 103, 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.

201-202. ELEMENTARY ECONOMICS. Throughout the year. Credit three hours a term. T Th S 10. Mr. BERKE.

An intensive introductory course with special emphasis on economic theories of efficiency, stability, and growth, and their relation to domestic and international economic policies of governments. Open to nonmajors (and to prospective majors with permission of the instructor) who have had one year of calculus.

II. ECONOMIC HISTORY

321. ECONOMIC HISTORY OF ANCIENT AND MEDIEVAL EUROPE. Fall term. Credit four hours. Open to upperclassmen with some background in economics or history, or with consent of the instructor, M W F 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. Mr. DOWD.

The period covered is from the close of the Middle Ages to the present.

323. AMERICAN ECONOMIC HISTORY. Spring term. Credit four hours. Prerequisite, Economics 103-104. T Th S 9. Mr. —.

An examination and analysis of significant processes and relationships in the economic development of the United States in the nineteenth and twentieth centuries.

325. ECONOMIC HISTORY OF LATIN AMERICA. Fall term. Credit four hours. Open to upperclassmen with some background in economics or history, or with consent of the instructor. T Th S 10. Mr. DAVIS.

A survey, emphasizing the processes and problems of economic growth and the evolution of economic institutions.

ECONOMIC AND BUSINESS HISTORY (Business & Public Administration 375). Fall term. Credit three hours. Limited to seniors who have completed Economics 103-104. M W F 9. 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.

See also Economics 333, 521-522, 523-524, 621-622.

III. CONTEMPORARY ECONOMIC INSTITUTIONS, PRACTICES AND PROBLEMS

A. MONEY, BANKING, AND PUBLIC FINANCE

231. MONEY, CREDIT, AND PUBLIC POLICY. Fall term. Credit three hours. Prerequisite, Economics 103-104. T Th S 10. Mr. —.

A study of the American financial system with emphasis on the roles played by commercial banks, the federal reserve system, and selected related financial institutions. Monetary, credit, and financial controls influencing general economic stability will be examined. Primarily for nonmajors.

331. MONEY, CREDIT, AND PUBLIC POLICY. Fall term. Credit four hours. Prerequisite, Economics 103-104. M W F 11. Mr. SELDEN. The subject matter of this course will be essentially the same as 231, but 331 will be designed for economics majors and will serve as prerequisite for 332.

332. MONETARY THEORY AND POLICY. Spring term. Credit four hours. Prerequisite, Economics 331. M W F 11. Mr. SELDEN.

A further study of monetary theory with emphasis on implications for monetary and fiscal policies; a consideration of international monetary reform.

333. FINANCIAL HISTORY OF THE UNITED STATES. Fall term. Credit four hours. Prerequisites, Economics 103-104 and three hours of American history. M W F 11. Mr. O'LEARY.

The development of American financial institutions, problems, and legislation from 1650 through 1940. Monetary media, banking systems and operations, public finance, and certain private financial institutions will be examined against the changing background of the American political and economic system. Lectures, library readings, and reports.

335. PUBLIC FINANCE: RESOURCE ALLOCATION. Fall term. Credit four hours. Prerequisite, Economics 103-104. T Th S 9. Mr. KILPATRICK.

An 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.

336. PUBLIC FINANCE: FISCAL POLICY. Spring term. Credit four hours. Prerequisite, Economics 335, or consent of instructor. T Th S 9. Mr. KILPATRICK.

A continuation of Economics 335, dealing primarily with the effects of taxation and expenditure policy on national income, the price level, and economic growth.

See also Economics 631-632, 633-634, 635-636.

B. LABOR ECONOMICS

341. ECONOMICS AND PROBLEMS OF LABOR. Fall term. Credit four hours. Prerequisite, Economics 103-104 or the consent of the instructor. M W F 10. Mr. MONTGOMERY.

A survey of the field of labor economics; an analysis of the basic industrial-relations problems emerging from modern economic arrangements; and an examination of the economic and other implications of various employer, trade-union, and government attacks upon these problems. In addition, there will be conferences both with individual students and with small groups, supervised individual reading, and undergraduate research projects.

342. ORGANIZED LABOR IN MODERN

ECONOMIC LIFE. Spring term. Credit four hours. Prerequisite, Economics 341 or permission of the instructor. M W F 10. Mr. MONTGOMERY.

A study of the origins, philosophic basis, aims, and policies of organized labor; of the environmental and other determinants of the functional character of labor movements; of the processes of collective bargaining and of the economic issues to which these processes give rise in a system of quasi-competitive capitalism; of the wage, income, employment, investment, and other consequences of the spread of collective bargaining; and of unionism as a political force. In addition, there will be conferences with individual students and with small groups, supervised individual reading, and undergraduate research reports.

344. THE STATE IN RELATION TO LABOR. Spring term. Credit two hours. T Th 2-3. Mr. MONTGOMERY.

An examination of public policy toward labor. Among the topics treated: common-law doctrines, antitrust acts, and labor-management statutes relating to permissible areas of self-help action; injunctions, damage suits, and right-to-work laws; protective legislation and social insurance; statutory, administrative, and constitutional aspects of the relationships of government to labor.

See also Economics 311, 413, 641-642.

C. ORGANIZATION, PERFORMANCE, AND CONTROL OF INDUSTRY

351. PRIVATE ENTERPRISE AND PUBLIC POLICY. Fall term. Credit four hours. Prerequisite, Economics 103-104. M W F 9. Mr. KAHN.

The approach to public policy in a private enterprise system in the light of the economist's concepts of competition and monopoly. Economic bases for delineating the public and private sectors and the public regulatory function. An analysis and appraisal of the prevalence and effectiveness of competition in the American economy, with particular emphasis on the business organization; the price, production, and marketing policies; and the economic performance of a range of industries characterized by varying degrees of market concentration and governmental intervention.

352. PUBLIC REGULATION OF BUSINESS. Spring term. Credit four hours. Prerequisite, Economics 351 or consent of the instructor. M W F 9. Mr. KAHN.

A continuation of Economics 351, concentrat-

ing mainly on public policies of enforcing, supplementing, or replacing competition, with specific studies of selected industries and recent legal cases.

TRANSPORTATION: RATES AND REGULATION (Business & Public Administration 575). Fall term. Credit three hours. Limited to seniors who have taken Economics 103-104 or the equivalent. M W F 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. Although primary attention is given to railroad economics and policies, other modes are considered from time to time. Reality is introduced by a considerable use of cases. Among the topics discussed are rates and the location of industry and trade, the theory of rates, the development and current content of United States inland transportation policy, the construction of rate systems, problems in competitive marketing, new types of rates and services, certain detailed problems of regulation, and the complexities of inter-carrier relations within a national transportation system.

TRANSPORTATION: ORGANIZATION, ADMINISTRATION AND PUBLIC POLICIES (Business & Public Administration 576). Spring term. Credit three hours. Limited to seniors who have completed Economics 103-104. M W F 10. Mr. HUTCHINS.

A continuation of B&PA 575 dealing with problems of organization, administration, and public policy in the various segments of transportation. The primary topics are: (1) merchant shipping, its economics, organization, rates, administrative problems, and national policies and rivalries; (2) air transport, especially problems of route structure, pricing, costs, regulation, and government promotion; (3) motor carrier transport, particularly problems of size of carrier, route structure, and relations with railroads, water carriers, and various middlemen; (4) domestic water transport and federal waterways policy; and (5) railroad reorganization, particularly with respect to mergers, finance, operations, inter-modal relations, and regulation. Cases are used to bring out some of the problems.

355. CORPORATE ENTERPRISE IN THE AMERICAN ECONOMY. Fall term. Credit three hours. Prerequisite, Economics 103-104. T Th S 10. Mr. O'LEARY.

An examination of the large American business corporation as an economic institution. Atten-

tion will be given to the corporation as the dominant device for ordering the allocation and administering the use of economic resources in the United States. Among the topics treated will be separation of ownership and management; segments of interest; reinvestment of earnings and the savings-investment process; the impact of taxation on basic decisions; the various types of corporation securities; government regulation; the public benefit corporation as a special case.

See also B.&P.A. 375, Economics 341-342, 312, 521-522, 523-524, 621-622, 631-632, 633-634, 651-652, 653.

D. INTERNATIONAL AND COMPARATIVE ECONOMICS

361. INTERNATIONAL TRADE THEORY AND POLICY. Fall term. Credit four hours. Prerequisite, Economics 103-104 or consent of the instructor. T Th S 11. Mr. ———.

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 FINANCIAL THEORY AND POLICY. Spring term. Credit four hours. Prerequisite, Economics 103-104 or consent of the instructor. T Th S 11. Mr. ———.

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. Spring term. Credit four hours. M W F 9. 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. Examination of reciprocal trade agreements, balance of payments on current account, foreign investment, economic aid, European economic integration, and commodity stabilization policies of this country.

[365. **COMPARATIVE ECONOMIC SYSTEMS: JAPAN, INDIA, CHINA.** Fall term. Credit four hours. M W F 11. Mr. GOLAY. Not offered in 1963-1964.

Capitalism, democratic socialism, and authoritarian socialism in the Far East. Comparative study of major Asian economies in terms of cultural environment, organization of production, social goals, institutions, policies, and economic growth.]

[367. **COMPARATIVE ECONOMIC SYSTEMS: SOVIET UNION AND EASTERN EUROPE.** Fall term. Credit four hours. Prerequisite, ILR 445 or consent of the instructor. M W F 11. Mr. STALLER. Not offered in 1963-1964.

Advanced discussion of selected topics: economic planning—methods and procedures; growth of gross national product and of industrial production; investment policies; changes in living standards; foreign trade; the Seven-Year Plan. Comparisons with West European countries and with the United States.]

COMPARATIVE ECONOMIC SYSTEMS: SOVIET RUSSIA (Industrial and Labor Relations 445). Spring term. Credit four hours. Prerequisite, Economics 103-104 or consent of the instructor. T Th 2-3:30. 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.

See also Economics 321, 325, 521-522, 561, 565, 571-572, 621-622, 661-662, 671-672, 675.

E. ECONOMIC GROWTH AND DEVELOPMENT

371. **PUBLIC POLICY AND ECONOMIC DEVELOPMENT.** Fall term. Credit four hours. Prerequisite, Economics 103-104 or consent of instructor. M W F 9. Mr. GOLAY.

Study of the role of the state in initiating and maintaining accelerated economic growth in less developed countries. Problems of capital accumulation, interaction of culture change and economic growth, outside participation in economic modernization, and the role of international specialization are emphasized. Course is focused on case studies and field research in South and Southeast Asia.

372. **PROCESSES OF ECONOMIC GROWTH AND DEVELOPMENT.** Spring term. Credit four hours. Prerequisite, Economics 103-104 or consent of the instructor. T Th S 11. Mr. ———.

A consideration of various contributions by economists and others to an understanding of how societies grow and undergo institutional change. Quantitative and qualitative processes are distinguished but treated as closely interdependent. The problems and processes of the transition to modernism are contrasted with those of both older and newer societies of various modern types. Some possibilities of combining elements from economics and other fields to form a broad approach to economic development are explored.

See also Economics 321-322, 323, 325, 361-362, 365, 367, 561, 565, 571-572, 661-662, 671-672, 675 and I & LR 445.

IV. ECONOMIC THEORY

311. **INTERMEDIATE MICROECONOMIC THEORY.** Either term. Credit four hours. Required of all students majoring in economics. Prerequisite, Economics 103-104. Fall term: M W F 10, Mr. ———; T Th S 10, Mr. KILPATRICK. Spring term, T Th S 9, Mr. ———.

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. **TRADE FLUCTUATIONS.** Either term. Credit four hours. Required of all students majoring in economics. Prerequisite, Economics 103-104 or consent of instructor. Fall term: M W F 9. Mr. HILDEBRAND. Spring term: M W F 10, Mr. COPELAND.

Honors section, open to those who passed Economics 104 (honors) with grade of 85 or better, or Economics 104 (regular) with grade of 90 or better. Spring term, time to be announced.

A study of the nature and causes of business recessions, revivals, and booms, and of general price trends, together with a consideration of various alternative methods of promoting business cycle and price stabilization and high levels of employment.

315-316. **HISTORY OF ECONOMIC THOUGHT.** Throughout the year. Credit four hours a term. With the consent of the instructor the first term need not be prerequisite to the second. W 2-4. 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. Supplementary readings from other men and schools will provide material for reports and term papers.

411. PRICE AND ALLOCATION THEORY. Fall term. Credit four hours. Prerequisite, Economics 311 or equivalent. T Th S 11. Mr. —.

Theories of utility, demand, production, and pricing, with special emphasis on recent developments.

412. MACROECONOMIC THEORY. Spring term. Credit four hours. Prerequisite, Economics 312. M W F 9. Mr. SELDEN.

Analysis of the determination of national income, the price level, and economic growth.

413. DISSENTING ECONOMIC DOCTRINES AND PROTEST MOVEMENTS. Fall term. Credit two hours. Th 2-4. Mr. MONTGOMERY.

A survey of economic doctrines of unorthodox or dissenting persuasion and a study of movements of social protest and of various types of economic organization that have been proposed or attempted. Among the matters considered: classical economic doctrines; the fore-runners of Marx; Marxian theories and predictions; politics and economics of Collectivism, Anarchism, British Fabianism and the Welfare State, and Communism; pricing and resource-allocation problems in different types of economic organization.

415. NATIONAL INCOME AND WEALTH. Spring term. Credit four hours. Prerequisites, Agricultural Economics 111 and Business and Public Administration 110S or their equivalents. M W F 2. Mr. COPELAND.

Social accounting with special emphasis on the U.S. National Income and Product Accounts and Flow of Funds Accounts. Other major statistical measurements used in aggregative analysis. Illustrations of the ways aggregate measurements have been used and problems illustrating their use. The course is intended to prepare students for advanced work in aggregative analysis.

417. INTRODUCTION TO MATHEMATICAL ECONOMICS. Fall term. Credit four hours. Prerequisite, Economics 311 and consent of the instructor. M W F 10. Mr. LIU. Application of elementary mathematical techniques to economic analysis.

V. HONORS

390. HONORS SEMINAR. Spring term. Credit three hours. Required of all juniors who plan to be candidates for Honors. F 2-4. Mr. ADAMS and Staff.

Readings in books which have been significant in the development of economics.

391-392. HONORS SEMINAR. Throughout the year. Credit three hours in fall, six hours in spring. Required of all seniors who are candidates for Honors. Fall term, M 2-4. Spring term, hours to be arranged. Mr. ADAMS and Staff.

Continuation of Economics 390, together with the writing of an Honors thesis and preparation for the comprehensive Honors examinations.

GRADUATE COURSES AND SEMINARS

521-522. EUROPEAN ECONOMIC HISTORY. Throughout the year. Credit four hours a term. Hours to be arranged. Mr. DOWD.

523-524. AMERICAN ECONOMIC HISTORY. Throughout the year. Credit four hours a term. Hours to be arranged. Mr. —.

561. INTERNATIONAL ECONOMIC THEORY AND POLICY. Fall term. Credit four hours. Hours to be arranged. Mr. MORSE.

565. ECONOMIC PROBLEMS OF LATIN AMERICA. Spring term. Credit four hours. Hours to be arranged. Mr. DAVIS.

571-572. ECONOMIC GROWTH AND DEVELOPMENT. Throughout the year. Credit four hours a term. Hours to be arranged. Fall term, Mr. GOLAY. Spring term, Mr. MORSE.

610. BUSINESS CYCLES AND GROWTH. Mr. —.

611-612. ECONOMIC THEORY. Throughout the year. Fall term, Mr. —. Spring term, Mr. COPELAND.

613-614. HISTORY OF ECONOMIC THOUGHT. Throughout the year. Mr. ADAMS.

616. INTERMEDIATE MATHEMATICAL ECONOMICS. Spring term. Mr. LIU.

617-618. MATHEMATICAL ECONOMICS. Throughout the year. Mr. STIGUM.

619-620. ECONOMETRICS. Throughout the year. Mr. LIU.

SEMINAR IN ECONOMIC STATISTICS (Industrial and Labor Relations 610). Fall term. Mr. —.

621-622. ECONOMIC HISTORY. Throughout the year. Messrs. DOWD and —.

631-632. MONETARY THEORY AND POLICY. Throughout the year. Mr. SELDEN.

633-634. **FINANCIAL THEORY, HISTORY, AND POLICY.** Throughout the year. Mr. O'LEARY. Given only in fall term, 1963-1964.

635-636. **PUBLIC FINANCE: THEORY AND POLICY.** Throughout the year. Mr. KILPATRICK.

637. **WELFARE ECONOMICS AND CAPITAL THEORY.** Fall term. Mr. FALKSON.

638. **ECONOMICS OF WATER RESOURCE DEVELOPMENT.** Spring term. Mr. FALKSON.

641-642. **LABOR ECONOMICS.** Throughout the year. Messrs. MONTGOMERY and HILDEBRAND.

651-652. **INDUSTRIAL ORGANIZATION AND REGULATION.** Throughout the year. Messrs. KAHN and BERKI.

653. **TRANSPORTATION.** Fall term. Mr. HUTCHINS.

661-662. **INTERNATIONAL ECONOMICS.** Throughout the year. Messrs. MORSE and GOLAY.

671-672. **ECONOMICS OF DEVELOPMENT.** Throughout the year. Messrs. GOLAY and MORSE.

673-674. **ECONOMIC PLANNING.** Throughout the year. Mr. STALLER.

[675. **ECONOMIC GROWTH IN SOUTH-EAST ASIA.** Fall term. Mr. GOLAY. Not offered in 1963-1964.]

676. **THE ECONOMY OF CHINA.** Spring term. Mr. ———.

ENGLISH

Mr. W. M. SALE, JR., *Chairman*; Messrs. M. H. ABRAMS, B. B. ADAMS, R. M. ADAMS, J. P. BISHOP, Mrs. J. F. BLACKALL, Mrs. M. F. BOYNTON, Messrs. A. CAPUTI, M. COLACURCIO, M. COWLEY, G. F. CRONKHITE, R. DURLING, D. D. EDDY, R. H. ELIAS, S. B. ELLEDGE, S. J. FERRIS, F. FIKE, J. FINCH, E. G. FOGEL, W. H. FRENCH, R. A. GREENBERG, B. HATHAWAY, E. HAUN, G. H. HEALEY, N. HERTZ, Mrs. J. S. HERZ, Mrs. A. R. KAMINSKY, Messrs. W. R. KEAST, D. W. KLEINE, R. LEVINE, Miss C. L. MARKS, Messrs. J. MCCONKEY, F. E. MINEKA, A. M. MIZENER, Miss M. F. MOLONEY, Messrs. J. R. NABHOLTZ, D. NOVARR, S. M. PARRISII, D. E. RAY, F. G. READ, Mrs. P. B. RINDLER, Messrs. W. D. SHAW, W. J. SLATOFF, H. H. SMITH, T. W. STOEHR, R. S. SWARD.

The student majoring in English is required to complete an introduction to the history of English literature (English 251-252 or 351-352) and a minimum of eight upperclass courses or seminars in English. English 251-252 or 351-352 must be completed by the end of the sophomore year. The eight upperclass courses or seminars, each of which must carry four hours of credit, should be taken at the rate of two per term during the student's last four terms of residence. Of these eight courses, a minimum of three must be at the 400 level or above. No 400-level course may be taken until the student has passed two 300-level courses and has registered for a third 300-level course. Eight hours of work in writing at the upperclass level may be included in the minimum requirement for the major. Eight hours of the following courses in literature may be counted toward the major in English: Literature 301-302, 309-310, 315-316, and 401-402.

For provisional admission to the major, students should apply to the Chairman of the Department in the second term of the freshman year or the first term of the sophomore year. Final admission to the major will require (1) completion of Distribution Requirement I; (2) achievement of an average of at least 75 in all courses in English during the two underclass years; (3) approval of a tentative program of study for the upperclass years, including a plan for completing Distribution Requirement II and a balanced selection of courses in the major. Students considering English as their major subject are urged to secure from the Department Office, Goldwin Smith 245, a detailed description of requirements in English which they will find useful in planning their programs.

Students who wish to apply for the Honors program in English should do so no later than the second term of the freshman year. Under special circumstances, however, students may be accepted as late as the second term of the sophomore year. Students provisionally accepted as Honors candidates will take English 351-352 in the sophomore year. For those accepted into the Honors program, the upperclass course of study will include a minimum of eight four-hour courses. Among these eight courses, Honors candidates will include English 491 and 492 in the junior year, 493 (the Honors Essay Tutorial) in the first term of the senior year, and 494 in the second term of the senior year.

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 must elect a

special program of professional courses offered by the Department and the School of Education. They should consult the Chairman of the Department and the Departmental Committee on the Preparation of Teachers, preferably during the second term of the freshman year, to begin planning their programs. A detailed statement concerning the preparation of teachers is available in the Department of English office.

For students not majoring in English, the Department attempts to make available a variety of courses at all levels. Courses at the 200 level are open to sophomores without prerequisite. Courses at the 300 level, some carrying three hours and some carrying four hours of credit, are open to juniors and seniors. Courses at the 400 level, unless a further prerequisite is stated in the course description, are open to students who have completed two four-hour 300-level courses in English and are currently registered for a third; nonmajors with exceptional qualifications may apply to the Chairman for relief from this requirement.

DISTRIBUTION REQUIREMENTS:

The following courses in English may be used to satisfy Distribution Requirement I: English 213-214, English 229-230, English 251-252 (restricted to English majors), English 255-256, English 351-352 (restricted to English Honors candidates).

The following courses are recommended for students who wish to use English to satisfy all or part of Distribution Requirement II: English 225-226, English 229-230, English 255-256, English 343, 344, or 346; or any pair of closely related upperclass courses. Some examples of such pairs of upperclass courses follow: English 321 and 424, dealing with the same period of literary history; English 314 and 318, dealing with contiguous periods; English 338 and 439 dealing with a single literary genre; English 333 and 478, dealing with American literature. Students wishing to satisfy Distribution II with 14 or more hours in English cannot include more than 6 hours of 200- courses.

COURSES FOR FRESHMEN

The Department offers three courses in English for freshmen. English 111-112 is the regular course. Freshmen who are candidates for advanced credit as attested by Advanced Placement Examinations or by distinguished work in secondary schools may be placed in English 119-120. A smaller number of especially outstanding freshmen will be placed in English 213-214. If so placed, students whose performance meets the standards of the course will be awarded three hours of advanced standing credit in English 119-120 and six hours of advanced standing credit in English 213-214.

111-112. INTRODUCTION TO ENGLISH. Throughout the year. Credit three hours a term. English 111 is prerequisite to English 112. M W F 8, 9, 10, 11, 12, 2, 3; T Th S 8, 9, 10, 11, 12. MESSRS. SLATOFF, SMITH, and others.

The aim is to increase the student's ability to communicate his own thought and to understand the thought of others.

119-120. COMPOSITION IN PROSE. Throughout the year. Credit three hours a term. English 119 is prerequisite to English 120. M W F 9, 10; T Th S 9. Mr. BISHOP and others.

Designed to provide practice in writing from experience. For freshmen who are candidates for advanced credit as attested by Advanced Placement Examinations or by distinguished

work in secondary schools. Students whose writing meets the standards of the course will be recommended for three hours of advanced standing credit in English composition.

213-214. INTRODUCTION TO LITERATURE. Throughout the year. Credit three hours a term. First term prerequisite to second. Open only to specially qualified freshmen. M W F 11, 2. Mr. SALE and others.

An introductory course in the study of the various forms of literature. For freshmen who are candidates for advanced credit as attested by Advanced Placement Examinations or by distinguished work in secondary schools. The course will satisfy Distribution Requirement I in the humanities. Students whose writing meets the standards of the course will be recommended for six hours of advanced standing credit in English composition.

ENGLISH AS A SECOND LANGUAGE

The following two courses are offered by the Division of Modern Languages. Foreign students should consult a member of that Division in Morrill Hall 108.

102. ENGLISH AS A SECOND LANGUAGE. Fall term. Credit three hours. Prerequisite, placement by the instructor. Daily at 10.

211-212. ENGLISH AS A SECOND LANGUAGE. Throughout the year. Credit three hours a term. Prerequisite, placement by the instructor. M W F 11.

INTERMEDIATE COURSES

Freshmen who in the spring term want to elect a course in English in addition to English 112 may enroll in English 226, 230, or, if they do not plan to major in English, in English 256.

203. SPECIAL FORMS OF WRITING. Either term. Credit three hours. Prerequisite, English 111-112 or the equivalent. Fall term, M W 12 or T Th 10, and conferences to be arranged. Spring term, M W 9 or T Th 10, and conferences to be arranged. Sections limited to fifteen. Mr. RAY and others.

An introductory course in the practice of writing narrative, verse, and allied forms.

204. SPECIAL FORMS OF WRITING. Spring term. Credit three hours. Prerequisite, English 203 or consent of the instructor. M W 12 or T Th 12, and conferences to be arranged. Sections limited to fifteen. Mr. McCONKEY and others.

A continuation of English 203; practice in writing narrative, verse, and allied forms.

205-206. ADVANCED COMPOSITION. Throughout the year. Credit three hours a term. English 111-112 or its equivalent prerequisite to English 205. English 205 or consent of the instructor prerequisite to English 206. M W F 9, T Th S 10. MESSRS. MINIKA and GREENBERG.

For sophomores and upperclassmen who, having performed creditably in English 111-112 (or its equivalent), desire to carry on work in expository writing. Practice in writing; individual conferences.

225-226. THE TWENTIETH CENTURY. Throughout the year. Credit three hours a term. First term not prerequisite to the second. M W F 2. MESSRS. READ and McCONKEY.

British and American writers. Fall term: Dreiser, O'Neill, Joyce, Yeats, Lawrence, Forster, and others. Spring term: Frost, Eliot, Auden, Huxley, Waugh, Hemingway, Faulkner, and others.

229-230. THE AMERICAN LITERARY HERITAGE. Throughout the year. Credit three hours a term. First term not prerequisite to second. First term not open to students who have taken or are currently registered in English 251 or 255. Second term not open to students who have taken or are currently registered in English 225, 226, 252, or 256. M W 10 and discussion sections to be arranged. Fall term, Mr. SLATOFF. Spring term, Mr. BISHOP.

A study of American literary masterpieces,

together with certain British works chosen because of their relevance to American writing. First term: to the Civil War. Second term: the past hundred years.

251-252. GREAT ENGLISH WRITERS. Throughout the year. Credit four hours a term. English 251 prerequisite to English 252. T Th 11 and discussion sections to be arranged. Mr. ABRAMS and others.

Studies in selected works of great English writers, Chaucer to the twentieth century. Open only to prospective majors in English, who should take this course in the sophomore year.

255-256. BRITISH LITERATURE. Throughout the year. Credit three hours a term. English 255 is not prerequisite to English 256. T Th S 12. Mr. HEALEY.

A study of works by notable English, Scottish, and Irish authors from the time of Chaucer to that of Yeats. First term: from Chaucer to Boswell. Second term: from Burns to Yeats.

351-352. THE ENGLISH LITERARY TRADITION. Throughout the year. Credit four hours a term. English 351 prerequisite to English 352. M W F 2. Mr. MIZENER.

A consideration of the English literary tradition through a careful study of three or four major authors in each period from the time of Chaucer to the present.

Open only to provisional candidates for Honors in English, who should take this course in the sophomore year.

COURSES FOR UPPERCLASSMEN

These courses are strictly limited to upperclassmen with the following exception: Students who have taken English 213-214 may elect one 300-level course in the second term of their sophomore year. Three courses—English 343, 344, and 346—carry three hours credit each and are especially designed for nonmajors. All other 300- and 400-level courses carry four hours credit. Courses at the 400-level are open only to students who have taken two four-hour 300-level courses in English and are registered for a third. Nonmajors with exceptional qualifications may apply to the Chairman for relief from this requirement.

309. RENAISSANCE POETRY AND PROSE. Fall term. Credit four hours. M W F 9. Mr. FOGEL.

The main traditions in poetry and prose from Spenser to Marvell.

314. MAJOR EIGHTEENTH-CENTURY AUTHORS. Spring term. Credit four hours. T Th S 9. Mr. ELLEDGE.

In 1963-1964 the principal emphasis will be on the writings of Swift, Pope, and Johnson.

317. THE ROMANTIC POETS. Fall term. Credit four hours. T Th S 11. Mr. PARRISH.

The nature of Romanticism, arrived at through a reading of the major poets: Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats.

320. THE VICTORIANS. Spring term. Credit four hours. T Th S 11. Mr. GREENBERG.

The major poets and prose writers from Carlyle to OSCAR WILDE, studied in relation to the thought of the time and to literature in the twentieth century.

333. MAJOR AMERICAN WRITERS OF THE NINETEENTH CENTURY. Fall term. Credit four hours. Not open to students who have taken English 229 or 230. M W F 2. Messrs. BISHOPE and STOEHR.

A brief survey of the course of American literature and a more detailed study of Poe, Emerson, Thoreau, Hawthorne, Dickinson, Melville, Whitman, Mark Twain, Adams, James, and Crane.

[336. THE MODERN AMERICAN NOVEL. Spring term. Credit four hours. M W F 10. Mr. SALE. Will be offered in 1964-1965.]

338. THE MODERN ENGLISH NOVEL. Spring term. Credit four hours. Open to students majoring in English and to others by permission of the instructor. Registration limited to 100. M W F 10. Mr. SALE. (Will not be offered in 1964-1965.)

A critical study of English fiction, beginning with George Eliot and concluding with selected contemporary novels.

339. REPRESENTATIVE ENGLISH DRAMAS. Fall term. Credit four hours. T Th S 10. Mr. CAPUTI.

A study of the principal traditions in the English drama (excluding Shakespeare) from the Middle Ages to the present century.

DRAMA AND THE THEATRE. (See Literature 301-302.)

343. FORMS OF FICTION. Fall term. Credit three hours. M W F 10. Mr. HATHAWAY.

A study of the forms of narrative in both prose and verse. Special attention will be given to the short story in the twentieth century.

344. SIX MAJOR POETS. Spring term. Credit three hours. M W F 9. Mr. READ.

A study of substantial selections from Donne, Pope, Keats, Browning, Yeats, and Frost. The poets will be studied against a background of the purposes, methods, and achievements of poetry.

346. MODERN DRAMA. Spring term. Credit three hours. T Th S 10. Mr. CAPUTI.

A study of the playwrights of this century, with some attention to continental backgrounds and special emphasis on Shaw, Yeats, O'Casey, O'Neill, and Miller.

365. CHAUCER. Fall term. Credit four hours. M W F 12. Mr. KASKE.

Primarily a literary study of the *Canterbury Tales*; brief reports; readings in writings about the fourteenth century.

368. SHAKESPEARE. Spring term. Credit four hours. M W F 11. Mr. MIZENER.

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 W F 11. Mr. ELLEDGE

Intensive study of Milton's poetry and selected prose with special reference to *Paradise Lost*.

381. ADVANCED GRAMMAR. Fall term. Credit four hours. M W F 12. Mr. HATHAWAY.

An inductive study of the grammatical structure of English, particularly of the language of the present day, both oral and written.

382. THE ENGLISH LANGUAGE. Spring term. Credit four hours. T Th S 11. Mr. FRENCH.

Problems of language: origin, derivation, semantics, usage, and other topics studied historically.

385-386. NARRATIVE WRITING. Throughout the year. Credit four hours a term. Prerequisite, English 204 or 206 or consent of the instructor. T Th 11 and conferences to be arranged. Messrs. McCONKEY and SLATOFF.

A course in the writing of fiction; study of models; analysis of students' work.

388. VERSE WRITING. Spring term. Credit four hours. Prerequisite, consent of the instructor. T Th 2-3:30. Mr. FIFE. (Will not be offered in 1964-1965.)

The techniques of poetry; study of models; criticism of students' poems; personal conferences.

405-406. OLD ENGLISH PROSE AND POETRY. Throughout the year. Credit four hours

54 ARTS AND SCIENCES

a term. T Th S 12. Fall term, Mr. FRENCH. Spring term, Mr. LEVINE.

Philology and literature from the Anglo-Saxon invasion to the Norman Conquest. Most of *Beowulf* will be read in the second term. This course is recommended by the Department to all who intend to become graduate students in English.

410. ELIZABETHANS AND METAPHYSICALS. Spring term. Credit four hours. M W F 9. Mr. NOVARR.

In 1963-1964, emphasis on genre and technique in the poetry of Donne, Jonson, Marvell, and Dryden.

413. THE ENGLISH NOVEL FROM DEFOE TO THACKERAY. Fall term. Credit four hours. T Th S 9. Mr. GREENBERG.

A critical study of selected novels by Defoe, Richardson, Fielding, Smollett, Sterne, Jane Austen, and Thackeray.

415. LITERATURE OF THE EIGHTEENTH CENTURY. Fall term. Credit four hours. T Th S 11. Mr. EDDY.

In 1963-1964 the emphasis will be on Johnson and his circle, including Boswell, Burke, and Goldsmith.

418. MASTERWORKS OF THE ROMANTIC PERIOD. Spring term. Credit four hours. T Th S 10. Mr. ABRAMS.

A critical study of major Romantic achievements in various forms: Blake's *The Four Zoas*, Wordsworth's *Prelude*, Shelley's *Prometheus Unbound*, Byron's *Don Juan*, Emily Brontë's *Wuthering Heights*.

420. ELIZABETHAN AND JACOBEAN DRAMA. Spring term. Credit four hours. T Th S 11. Mr. SMITH.

Critical study of plays by Marlowe, Marston, Jonson, Webster, Beaumont, Fletcher, Ford, and others. The development of dramatic forms and the main currents of ideas in dramatic representation by contemporaries of Shakespeare and Donne.

423. VICTORIAN SOCIAL CRITICS. Fall term. Credit four hours. T Th S 9. Mr. MINCKA.

Major social and intellectual conflicts as reflected especially in the writings of Dickens, Arnold, and Carlyle.

424. MAJOR VICTORIAN POETS. Spring term. Credit four hours. M W F 12. Miss MOLONEY.

The poetry of Tennyson, Browning, Arnold, and Hopkins.

439. STUDIES IN THE NOVEL. Fall term. Credit four hours. Prerequisite, English 336. M W F 12. Mr. SLATOFF.

In 1963 the emphasis will be on the fiction of William Faulkner.

441. RESTORATION AND EIGHTEENTH-CENTURY DRAMA. Fall term. Credit four hours. T Th S 10. Mr. HAUN.

The drama from Wycherley and Congreve to Goldsmith and Sheridan.

449. AMERICAN POETRY SINCE 1900. Fall term. Credit four hours. M W F 12. Mr. FRENCH.

American poets from Robinson to the present; theories of poetry. Reports and papers.

466. MEDIEVAL AND RENAISSANCE NARRATIVE. Spring term. Credit four hours. M W F 12. Mr. B. B. ADAMS.

In 1963-1964 the major emphasis will be on Chaucer's *Troilus and Criseyde*, Malory, and Spenser's *Faerie Queene*.

469. SHAKESPEARE. Fall term. Credit four hours. Prerequisite, English 369. M W F 11. Mr. SMITH.

An intensive study of three or four of Shakespeare's plays.

474. TRANSCENDENTALISM IN AMERICAN LITERATURE. Spring term. Credit four hours. M W F 12. Mr. BISHOP.

The major works of Emerson, Thoreau, and Whitman, considered in relation to their cultural and intellectual context and to the writings of contemporaries.

476. STUDIES IN EARLY AMERICAN AUTHORS. Spring term. Credit four hours. M W F 11. Mr. CRONKHITE.

The work of such authors as Jonathan Edwards, Edward Taylor, Franklin, Paine, Freneau, C. B. Brown, Irving, Bryant, and Cooper studied in relation to Puritanism, Deism, and the beginnings of the Romantic movement.

478. READINGS IN NINETEENTH-CENTURY AMERICAN AUTHORS. Spring term. Credit four hours. M W F 9. Mr. COLACURCIO.

A study of the fiction of Hawthorne and Melville.

481. HENRY JAMES AND MARK TWAIN. Fall term. Credit four hours. M W F 10. Mrs. BLACKALL.

An intensive examination of the work of one of these major American writers, with special attention to his concern with the American character, his technique, and the relation of

his work to that of an important contemporary. In 1963-1964 the emphasis will be on the fiction of Henry James.

485. STUDIES IN MODERN LITERATURE. Fall term. Credit four hours. M W F 11. Mr. MIZENER.

A critical examination of selected prose and poetry.

495-496. SEMINAR IN WRITING. Throughout the year. Credit four hours each term. Prerequisite, English 385-386 or 388 or consent of the instructor. W 2-4. Mr. HATHAWAY.

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.

PRINCIPLES OF LITERARY CRITICISM. (See Literature 401-402.)

THE TEACHING OF ENGLISH. (Education 130E) Either term. Credit four hours. Th 2-4. Taught jointly by the Department of English and the School of Education. Fall term, Mr. NOVARR. Spring term, Miss PEARD.

Emphasis on the teaching of reading, writing, and language. Undergraduates accepted for the English-teaching program should register for this course in the term immediately prior to that in which their practice teaching is scheduled; all others should see Miss Peard before registering.

HONORS COURSES

Not later than the preregistration period for the spring term of the sophomore year students should apply to the Chairman of the Department for provisional acceptance as candidates for a degree with Honors in English. These students will elect English 491 and 492 in the junior year, English 493 (the Honors Essay Tutorial) in the fall term of the senior year, and English 494 in the spring term of the senior year. Other courses will be selected in consultation with their advisers.

491. HONORS COURSE: REPRESENTATIVE FORMS OF FICTION. Fall term. Credit four hours. T Th 2-4. Mr. MIZENER and others.

492. HONORS COURSE: SHAKESPEARE. Spring term. Credit four hours. T Th 2-4. Mr. ELLEDGE and others.

493. HONORS ESSAY TUTORIAL. Fall term. Credit four hours. Hours to be arranged. Mr. — and others.

494. HONORS COURSE: THE CRITICISM OF POETRY. Spring term. Credit four hours. M W 2-4. Messrs. R. M. ADAMS and FOGEL.

FOR GRADUATE STUDENTS

The Department will issue, at the beginning of each term, an announcement of special topics and hours of meeting for each course and will then indicate which courses will be offered in 1963-1964.

GRADUATE COURSES

These courses are intended as introductions to advanced study and presuppose reasonable undergraduate preparation. Before registering in graduate courses, all students must secure the consent of the instructor. A few specially qualified undergraduates may be admitted.

501. INTRODUCTION TO GRADUATE STUDY. Fall term. Credit four hours. Mr. NOVARR. Recommended for all candidates for the Master's degree.

504. STUDIES IN CHAUCER. Spring term. Credit four hours. Mr. FRENCH.

505. HISTORY AND THEORY OF RHETORIC. Fall term. Credit four hours. Mr. ELLEDGE.

506. MEDIEVAL AND EARLY RENAISSANCE LITERATURE. Spring term. Credit four hours. Mr. DURLING.

535. VICTORIAN WRITERS. Fall term. Credit four hours. Mr. MINEKA.

536. NINETEENTH-CENTURY POETRY. Spring term. Credit four hours. Mr. MINEKA.

555. STUDIES IN AMERICAN POETRY. Fall term. Credit four hours. Mr. BISHOP.

557. STUDIES IN AMERICAN FICTION. Fall term. Credit four hours. Mr. CRONKHITE.

558. STUDIES IN MAJOR AMERICAN WRITERS. Spring term. Credit four hours. Mr. COWLEY.

560. DRAMATIC LITERATURE. Spring term. Credit four hours. Mr. CAPUTI.

565. TWENTIETH-CENTURY LITERATURE. Fall term. Credit four hours. Mr. KLEINE.

568. STUDIES IN LITERARY CRITICISM. Spring term. Credit four hours. Mr. STOEHR.

595-596. CREATIVE WRITING. Both terms. Credit four hours a term. Mr. HATHAWAY.

597. MASTER'S ESSAY. Credit four hours. Members of the Department.

GRADUATE SEMINARS

These seminars are intended primarily for students in their second or third year of graduate study.

601. **BIBLIOGRAPHY AND METHOD.** Fall term. Credit four hours. Mr. PARRISH. Recommended for all candidates for the doctorate.

603. **MIDDLE ENGLISH LITERATURE.** Fall term. Credit four hours. Mr. LEVINE.

608. **STUDIES IN RENAISSANCE LITERATURE.** Spring term. Credit four hours. Mr. R. M. ADAMS.

609. **SHAKESPEARE.** Fall term. Credit four hours. Mr. FOGEL.

612. **SEVENTEENTH-CENTURY LITERATURE.** Spring term. Credit four hours. Mr. NOVARR.

620. **EIGHTEENTH-CENTURY LITERATURE.** Spring term. Credit four hours. Mr. KEAST.

631. **THE ROMANTIC PERIOD.** Fall term. Credit four hours. Mr. ABRAMS.

632. **WORDSWORTH.** Spring term. Credit four hours. Mr. PARRISH.

640. **STUDIES IN ENGLISH POETRY.** Spring term. Credit four hours. Mr. ABRAMS.

653. **STUDIES IN PROSE FICTION.** Fall term. Credit four hours. Mr. MIZENER.

GEOLOGY AND GEOGRAPHY

Mr. J. W. WELLS, *Chairman*; MESSRS. A. L. ANDERSON, A. L. BLOOM, J. D. BURFOOT, JR., W. S. COLE, G. A. KIERSCH, E. S. LENKER, S. S. PHILLBRICK.

For admission as a major in geology, students should complete *Geology 101-102*, *Mathematics 111-112*, and *General Chemistry 105-106*, and should obtain permission from the departmental major adviser. It is recommended that potential majors complete the following: *Physics 207-208*; a three-credit-hour course in mechanical drawing; and a one-credit-hour course in plane surveying.

Upon acceptance as a major the minimal requirements are: (1) *Geology 322, 351-352, 441, 471-472, and 490*; (2) two elective courses in geology numbered 300 or higher; and (3) six semester hours' credit at an approved summer field camp.

Students considering graduate study in paleontology should elect a distribution sequence of four courses in zoology, whereas those planning graduate study in the physical aspects of geology should select distribution sequences from mathematics, physics, chemistry, or engineering.

The distribution requirement of the College of Arts and Sciences in physical and biological science can be met by completing *Geology 101-102*.

Any of the following sequences of courses will satisfy the requirements for nonmajors who elect additional work in geology or geography:

Geography 212, 312, 314, Geology 441
Geology 201, 202, 471, 472

Geology 351, 352, and 461, 462 or 451, 452
Geology 322, 421, 441, 542

GEOGRAPHY

UNDERCLASS COURSES

111. **GENERAL GEOGRAPHY.** Fall term. Credit three hours. Lectures, M W F 9. Mr. BLOOM.

Introduction to geography including space relationships, world climates, soils, and geographic provinces. Land use, the natural resources of selected regions, and trade in these resources will be emphasized.

212. **MINERAL RESOURCES.** Spring term. Credit three hours. Lectures, M W F 9. Mr. ANDERSON.

Utilization 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.

UPPERCLASS AND GRADUATE COURSES

312. **GEOGRAPHY OF ANGLO-AMERICA.** Spring term. Credit four hours. Prerequisite, *Geography 105*, or *Geology 102*. Lectures, M W F 9, and additional assigned problems. Mr. BLOOM. Alternate-year course; offered in 1963-1964.

The geographic provinces of Anglo-America, their geomorphic expression, climates, resources, development, and interrelationships.

[314. **CONTINENTAL GEOGRAPHY.** Spring term. Credit four hours. Prerequisites, *Geography 111*, or *Geology 102*. Lectures, M W F 9, and additional assigned problems. Mr. BLOOM. Alternate-year course; not offered in 1963-1964.]

610. **SPECIAL WORK.** Throughout the year.

Credit variable. Prerequisite, consent of the instructor. Staff.

Special or original investigations in geography on the graduate level.

GEOLOGY

UNDERCLASS COURSES

101-102. GENERAL GEOLOGY. Throughout the year. Geology 101 prerequisite to Geology 102. Credit three hours a semester (if taken after Geology 103 or Geology 105, one hour credit the first semester). For students in Arts and Sciences. Lectures, M W 10, or T Th 11. Scheduled preliminary examinations will be held at 7:30 p.m. twice each term. Laboratory, M T W Th or F 2-4:30. Messrs. COLE and WELLS.

Introduction to the various branches of geologic science: mineralogic, lithologic, geomorphic, structural, glacial, historic, and economic. For geology majors and others desiring a comprehensive survey of earth science.

103. GEOLOGY FOR ENGINEERS. Either term. Credit three hours; if taken after Geology 101-102 or 105, one hour credit. Lectures: fall term, T Th 9; spring term, T Th 9. Laboratory, M W 2-4:30. Mr. ANDERSON.

A geologic background for engineers, including limitations imposed by geologic conditions.

105. ELEMENTARY GEOLOGY. Either term. Credit three hours. For students in agriculture and home economics. This course cannot be used to satisfy the science requirement of the College of Arts and Sciences. Lectures, T Th 11. Laboratory, M T W Th F 2-4:30, or S 8-10:30. Mr. PHILBRICK.

Fundamental principles of geologic science with emphasis on the physical aspects and their influence on the agricultural sciences.

201. HISTORIC GEOLOGY. Fall term. Credit three hours. Prerequisite, Geology 102 or 105. Lectures, M W 9. Laboratory, W 2-4:30. Mr. WELLS. Alternate-year course; offered in 1963-1964.

Geologic history of the earth with special reference to North America. For geology majors and others desiring a broad view of the physical and organic history of the earth. Four afternoon and two all-day field trips.

202. ANCIENT LIFE. Spring term. Credit three hours. No prerequisite, but Geology 102 or Geology 105 is desirable. Lectures, M W F 11. 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.

UPPERCLASS AND GRADUATE COURSES

Structural Geology and Sedimentation

322. STRUCTURAL GEOLOGY. Spring term. Credit four hours. Prerequisite, Geology 102; Geology 352 recommended as additional prerequisite. Lectures, M W 11. Laboratory, M 2-4:30, and additional assigned problems. Field trips. Mr. PHILBRICK.

Nature, recognition, and origin of geologic structures. Behavior of geologic materials, stress mechanics, 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. Prerequisite, Geology 352; Geology 441 recommended. For majors in geology and others interested in engineering problems related to sedimentation and surficial deposits. Lectures, M W 11. Laboratory, M 2-4:30, and additional laboratory work. Field trips. Mr. KIERSCH. Alternate-year course; not offered in 1963-1964.]

Geomorphology and Glacial Geology

441. GEOMORPHOLOGY. Fall term. Credit four hours. Prerequisite, Geology 102. Lectures, T Th 9. Laboratory, T 2-4:30, 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, Geology 441. Lectures, T Th 9. Laboratory, T 2-4:30. Several Saturday field trips. Mr. BLOOM.

Glacial processes and deposits and the stratigraphy of the Pleistocene.

Mineralogy, Petrology, and Geochemistry

351. MINERALOGY. Fall term. Credit four hours. Prerequisite, Chemistry 106. Lecture, M 10. Laboratories, W F 2-4:30, and additional assigned problems. Mr. LENKER.

Crystallography, crystal chemistry, and systematic mineralogy of the ore and rock-forming minerals.

352. **PETROLOGY.** Spring term. Credit four hours. Prerequisite, Geology 351. Prerequisite or parallel, Geology 102. Lectures, M F 10. Laboratory, Th 2-4:30, and additional assigned problems. Mr. LENKER.

Composition, classification, and origin of igneous, sedimentary, and metamorphic rocks.

451. **OPTICAL MINERALOGY.** Fall term. Credit four hours. Prerequisite, Geology 351. Lecture, W 12. Laboratories, M T 2-4:30, and additional assigned problems. Mr. LENKER. Alternate-year course; offered in 1963-1964.

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, Geology 352 and 451. Lecture, W 12. Laboratories, M T 2-4:30, and additional assigned problems. Mr. LENKER. Alternate-year course; offered in 1963-1964.

Description, classification, and determination of the origin of igneous, metamorphic, and sedimentary rocks by the use of the petrographic microscope.

[551. **GEOCHEMISTRY.** Fall term. Credit three hours. Prerequisite, Geology 352. Lectures, M W F 8. Mr. LENKER. Alternate-year course; not offered in 1963-1964.]

[552. **IGNEOUS AND METAMORPHIC PETROGENY.** Spring term. Credit three hours. Prerequisites, Mathematics 112, and Geology 551. Prerequisite or parallel, Geology 452. Lectures, M W F 11. Mr. LENKER. Alternate-year course; not offered in 1963-1964.]

Paleontology and Stratigraphy

471. **INVERTEBRATE PALEONTOLOGY.** Fall term. Credit four hours. Prerequisites, Geology 102, and, if possible, invertebrate zoology. For majors in geology and others interested in fossil evidence of the development of organisms. Lectures, T Th 10. Laboratory, W Th 2-4:30. Mr. COLE.

Paleobiology and classification of important fossil invertebrates.

472. **BIOSTRATIGRAPHY.** Spring term. Credit four hours. Prerequisite, Geology 471. Lectures, T Th 10. Laboratory, W 2-4:30, and additional assigned problems. Mr. WELLS.

Zone fossils, faunas, and faunal provinces of the geologic periods.

571-572. **STRATIGRAPHY.** Throughout the year. Credit three hours a term. Prerequisites, Geology 102, 471. Lectures: fall term, T Th 9, and W 7:30 p.m.; spring term, T W Th 9. Messrs. COLE and WELLS.

Principles of stratigraphy developed by detailed study of selected American and European systemic examples. Fall term: the Paleozoic. Spring term: the Mesozoic and Cenozoic.

671. **MICROPALAEONTOLOGY.** Spring term. Credit two hours. Prerequisite, Geology 472, 571, 572. Lecture, W 9. Laboratory, W 2-4:30, and additional assigned problems. Mr. COLE.

Microfossils, chiefly Foraminifera.

672. **STRATIGRAPHY OF NEW YORK STATE.** Spring term. Credit three hours. Prerequisite, Geology 571. Lectures, T Th 12, early in the term, followed by all-day and weekend field trips. Mr. WELLS. Alternate-year course; offered in 1963-1964.

The classic Paleozoic sections of New York studied through lectures, readings, and field observation.

Metalliferous and Nonmetalliferous Deposits

461. **MINERAL DEPOSITS—METALS.** Fall term. Credit four hours. Prerequisites, Geology 102 or 103, 351. Lectures, M W F 10. Laboratory, F 2-4:30. Mr. ANDERSON.

Principles and processes involved in the formation of mineral deposits, metallic and non-metallic. Modes of occurrence, origin, distribution, and utilization of the major, rare, and minor metals.

462. **MINERAL DEPOSITS—NONMETALS.** Spring term. Credit four hours. Prerequisite, Geology 461. Lectures, M W F 10. Laboratory, F 2-4:30. Mr. ANDERSON.

Properties, occurrence, associations, distribution, and economic utilization of the industrial minerals and rocks.

561-562. **ADVANCED STUDY OF MINERAL DEPOSITS.** Throughout the year. Credit three hours a term. Prerequisite, Geology 462. Lectures, M W F 8. Mr. ANDERSON. Alternate-year course; offered in 1963-1964.

Occurrence and origin of economically important mineral deposits. Fall term: deposits of primary origin. Spring term: deposits of secondary origin.

[563. **ORE MICROSCOPY.** Fall term. Credit

two hours. Prerequisite, Geology 351. Laboratory, F S 8-10:30. Mr. ANDERSON. Alternate-year course; not offered in 1963-1964.]

Ground Water and Engineering Geology

[531. **GROUND WATER GEOLOGY.** Fall term. Credit three hours. Prerequisite, Geology 421. Lectures, M W 11. Laboratory, M 2-4:30, and field trips. Mr. KIERSCH. Alternate-year course; not offered in 1963-1964.]

533. **ENGINEERING GEOLOGY.** Fall term. Credit three hours. Prerequisites, Geology 322 and 452. Lectures, M W 9. Laboratory, W 2-4:30. Field trips. Mr. PHILBRICK. Alternate-year course; offered in 1963-1964.

Advanced study of physical phenomena and rock properties including water and other fluids, sediment, subsidence, landslides, frozen-ground, natural and artificial dynamic stresses, rock mechanics, rock-soil weathering, and geologic materials of construction. Analysis of their significance in geologic and engineering problems.

Exploration Geology

[582. **EXPLORATION GEOLOGY.** Spring term. Credit three hours. Must be taken by all graduate students in geology. Prerequisite, Geology 462. Lectures, M W F 8. Mr. ANDERSON and Staff. Alternate-year course; not offered in 1963-1964.]

Seminar and Special Work

490. **SENIOR THESIS.** Either term. Credit one hour. Staff.

690. **SPECIAL WORK.** Throughout the year. Credit variable. Prerequisite, consent of the instructor. Staff.

Special or original investigations in geology on the graduate level.

SEMINAR IN GEOLOGY. Each term. No credit. For majors and required of graduate students, but open to all who are interested. M 4:45.

Reports and discussion of current research in geology and geography.

GOVERNMENT

Mr. MARIO EINAUDI, *Chairman*; Messts. ALAN ALTSHULER, WALTER BERNS, ALLAN BLOOM, HERBERT W. BRIGGS, ARCHIE T. DOTSON, GEORGE FISCHER, ANDREW HACKER, GEORGE McT. KAHN, JOHN WILSON LEWIS, THEODORE LOWI, STEVEN MULLER, CLINTON ROSSITER.

For a major in government the following courses must be completed: (1) Government 101, Government 104, and Government 203; (2) a minimum of twenty-four additional hours in the Department at 300 or above; (3) in related subjects, a minimum of twelve hours selected with the approval of the adviser from courses numbered 300 or above in anthropology, economics, history, philosophy, and sociology. Of the related hours, at least six must be in history. Courses in American studies, subject to the approval of the adviser, may be counted as government or history courses.

Juniors and seniors majoring in the Department who have a grade of 85 or better in one half of the hours they have passed may take supervised study in government. Consent of the instructor is required.

Candidates for the degree of Bachelor of Arts with Honors in Government will complete Government 101, 104, 203, and a minimum of twenty-eight additional hours of work in the Department, including Government 492, 493, and 494, as well as sixteen hours in related subjects.

Students seeking admission to the Department's Honors program must file applications on forms obtainable from the departmental secretary by October 15 of their junior year. Applications should be submitted only by students who have a cumulative average of 85 or better in all courses completed in the Department, or who can present evidence of exceptional promise.

The social science requirement in government under Distribution I may be satisfied with Government 101 and 104.

INTRODUCTORY COURSES

101. **AMERICAN GOVERNMENT.** Fall term. Credit three hours. Open to all students (with

first preference for Arts and Sciences students). Lectures, T Th 2. Discussion sections, Th 3; F 10, 11, 2, 3; S 10, 11. Messts, BERNS, HACKER, and Staff.

60 ARTS AND SCIENCES

A general introduction to American national government and politics. Emphasis will be placed on historical development, organization, powers, practical working, and problems of federalism.

101. AMERICAN GOVERNMENT. Spring term. Credit three hours. Primarily for non-Arts and Sciences students. Lectures, T Th 9. Discussion sections, Th 3; F 8, 12. Mr. ALTSHULER and Staff.

A general introduction to American national government and politics. Emphasis will be placed on historical development, organization, powers, practical working, and problems of federalism.

104. COMPARATIVE GOVERNMENT. Spring term. Credit three hours. Open to all students. Lectures, T Th 2. Discussion sections, Th 3; F 10, 11, 2, 3; S 10, 11. Messrs. EINAUDI, MULLER, and Staff.

A comparative study of major contemporary political movements and of governmental institutions and processes. Great Britain, France, Germany, Russia, as well as some of the newly emerging countries, will provide the materials for the discussion of key issues.

203. INTRODUCTION TO POLITICAL THEORY. Fall term. Credit three hours. Open to all students. Prerequisite, Government 101 and 104. Lectures, M W 2. Discussion sections to be arranged. Mr. Bloom.

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.

AMERICAN GOVERNMENT AND INSTITUTIONS

312. URBAN POLITICS. Spring term. Credit four hours. Prerequisite, Government 101 or consent of instructor. T Th 10 and a third hour to be arranged. Mr. Lowi.

An examination of the elements of politics in large urban centers and their suburban satellites. Analysis of relationships between governmental activities and political power, making use of systematic studies of selected problems.

313. AMERICAN CONSTITUTIONAL LAW. Fall term. Credit four hours. Open to juniors and seniors only. Prerequisite, Government 101. T Th 12 and a third hour to be arranged. Mr. BERNs.

A study of the law of the Constitution as this has been expounded by the Supreme

Court. Emphasis will be placed on the various understandings of freedom that have inspired, or given rise to, that law. The course will be conducted primarily through class discussion of assigned cases.

314. POLITICS AND SOCIETY. Spring term. Credit three hours. Prerequisite, Government 101. T Th S 11. Mr. HACKER.

An analysis of the social institutions and patterns of behavior that contribute to the shaping of American political life.

316. THE AMERICAN PRESIDENCY. Spring term. Credit three hours. No prerequisite, but Government 101 and History 315-316 or 317-318 are recommended preliminary courses. T Th S 10. Mr. ROSSITER.

Analysis of the office and powers of the President, with emphasis on his activities as administrator, diplomat, commander, legislator, politician, and head of state. The lives and accomplishments of the important Presidents are studied at length.

317. THE POLITICAL PROCESS: AMERICAN POLITICAL PARTIES. Fall term. Credit three hours. Prerequisite, Government 101. American history or sociology are recommended preliminary courses. T Th 3-4:30. Mr. Lowi.

An extensive examination of the literature on American parties, pressure groups, and electoral behavior. Analysis of the structure and functions of political organizations and the electoral, interest group, and policy differences between the Democratic and Republican parties at the national, state, and local levels.

318. THE POLITICAL PROCESS: THE AMERICAN CONGRESS. Spring term. Credit four hours. Open to sophomores and upperclassmen. Prerequisite, Government 101. T Th 3-4:30. Mr. Lowi.

An intensive study of politics and policy formation in Congress. Special emphasis on the problems of the representative assembly in the twentieth century.

321. PUBLIC ADMINISTRATION. Fall term. Credit three hours. Open to sophomores and upperclassmen. Prerequisite, Government 101 or consent of instructor. M W F 12. Mr. ALTSHULER.

An examination of the problems posed by the growth and bureaucratization of government. A study of the place of the administrative agencies in the American system of government, and their relations with the President, Congress, pressure groups, and the courts.

[326. PUBLIC ADMINISTRATION AND PUBLIC POLICY. Spring term. Credit four

hours. Open to sophomores and upperclassmen. Prerequisite, Government 101 or consent of instructor. M W F 12. Mr. ———. Not offered in 1963-1964.

A study of the role of the administrator in the formulation of public policy. An examination of the processes, problems, and effects of executive influence in legislation and adjudication. An effort at redefinition of democratic responsibility in the light of modern political requirements.]

[328. **THE ADMINISTRATIVE PROCESS.** Spring term. Credit four hours. Open to sophomores with consent of instructor and to upperclassmen. Prerequisite, Government 101 or consent of instructor. M W 2-3:30. Mr. ———. Not offered in 1963-1964.

An examination of the law governing the administrative process. An investigation of elements of administrative law, the powers and procedures of and the limitations upon administrative officers and agencies. Case materials are employed throughout.]

330. **PUBLIC CONTROL OF ECONOMIC LIFE.** Spring term. Credit four hours. Open to sophomores and upperclassmen. Prerequisite, Government 101 or consent of instructor. M W F 12. Mr. ALTSHULER.

An analysis of the political and administrative problems associated with government efforts to influence or directly to control economic life. The American experience will be stressed, but brief examinations of nationalization and planning in Western Europe and the Soviet Union will be undertaken for comparative purposes.

[425. **POLITICAL BEHAVIOR.** Fall term. Credit four hours. Prerequisite, consent of the instructor. T Th 9 and a third hour to be arranged. Mr. HACKER. Not offered in 1963-1964.

An examination of selected problems in political psychology and political sociology.]

[428. **PRINCIPLES AND PROBLEMS OF AMERICAN DEMOCRACY.** Spring term. Credit four hours. Open to seniors. Prerequisite, Government 355 and consent of the instructor. Hours to be arranged. Mr. ROSITER. Not offered in 1963-1964.

A critical examination of selected political and social problems currently facing the American people. Emphasis will be placed upon the extent to which possible solutions of these problems conform to the American tradition and the extent to which the tradition may have to be redefined in the light of present realities.]

COMPARATIVE GOVERNMENT

333. **GOVERNMENT AND POLITICS OF THE SOVIET UNION.** Fall term. Credit four hours. Open to upperclassmen. Prerequisite, Government 104 or consent of instructor. M W F 12. Mr. FISCHER.

An introduction to the Soviet political system.

338. **POLITICS AND MODERNIZATION.** Spring term. Credit four hours. Open to upperclassmen. M W F 12. Mr. FISCHER.

A comparative study of political and social change in Asia, Africa, Latin America, and Communist countries. Attention is paid to relevant developments in the United States and Western Europe.

[342. **CONSTITUTIONAL GOVERNMENT IN EUROPE.** Spring term. Credit four hours. Open to upperclassmen. Prerequisite, Government 104. Lectures, T Th 2-3:30. Mr. EINAUDI. Not offered in 1963-1964.

An analysis of the major problems of constitutional government in Europe in the light of the crisis of totalitarianism and of modern wars. Forms and realities of constitutionalism. Supranational trends. A comparative study of parties and of their role in political life. Extraconstitutional forces and their relationship to institutions.]

[343. **GOVERNMENT AND POLITICS IN THE COMMONWEALTH.** Fall term. Credit four hours. Prerequisite, Government 104. T Th S 9. Mr. MULLER. Not offered in 1963-1964.

An analysis of constitutional development in the member states of the Commonwealth. The British model of parliamentary government and Commonwealth variations. The nature of the Commonwealth association. United Kingdom dependencies and problems of political autonomy. Parties and party systems in the Commonwealth.]

344. **GOVERNMENTS AND POLITICS OF SOUTHEAST ASIA.** Spring term. Credit four hours. Prerequisite, Government 104 and Government 377 or consent of the instructor. M F 2-3:30. Mr. KAHN.

Analysis of the organization and functioning of government and politics in the countries of Southeast Asia, with attention given to the nature of the social and economic environments which condition them.

347. **CHINESE GOVERNMENT AND POLITICS.** Fall term. Credit four hours. Prerequisite, Government 104. M W F 10. Mr. LEWIS.

General introduction to the politics of mod-

ern China with particular emphasis on the political processes of the People's Republic of China.

POLITICAL THEORY

351. DEVELOPMENT OF MODERN POLITICAL THOUGHT. Fall term. Credit four hours. Open to upperclassmen. Lectures, T Th 10. Discussion sections, Th 2, 3; F 2, 3. Mr. EINAUDI.

The development of political thought from the sixteenth to the nineteenth century. The course is built around certain essential concepts of political theory: the nature of law, the state and sovereignty, individual rights and the community. Machiavelli, Hobbes, the Enlightenment, Rousseau, Hegel, and Marx will receive particular attention.

355. AMERICAN POLITICAL THOUGHT. Fall term. Credit four hours. Open to upperclassmen. Prerequisite, Government 101 and History 315-316 or 317-318. T Th S 11. Mr. ROSSITER.

Survey of the development of American political thought, with emphasis on the origins and uses of ideas. Other kinds of thought—constitutional, social, religious, economic, educational, cultural—are considered in their relations to political thought.

462. ORIGINS OF WESTERN POLITICAL THOUGHT. Spring term. Credit four hours. Open to sophomores and upperclassmen. T Th S 12. Mr. BLOOM.

A survey of the classical political teachings in their development from the pre-Socratics through Greek and Roman antiquity and in their transformation by the revealed religions.

464. BASIC PROBLEMS IN POLITICAL THEORY. Spring term. Credit four hours. Open to upperclassmen with the consent of the instructor. M W F 9. Mr. BERNS.

Textual analysis of the writings of selected modern political philosophers.

INTERNATIONAL RELATIONS

372. INTERNATIONAL RELATIONS. Spring term. Credit three hours. Open to sophomores and upperclassmen. M W F 10. Mr. LEWIS.

An analysis of the basic issues, concepts, contents, and methods which characterize relations among states. Ideological, legal, military, and economic elements which may contribute to harmony and dissent will be discussed in terms of both international society and national foreign policies. The over-all frame of

reference will consist chiefly of theories, practices, and institutions developed since World War II.

377. THE UNITED STATES AND ASIA. Fall term. Credit three hours. No prerequisites. Open to sophomores and upperclassmen. M W F 8. Mr. KAHIN.

An analysis of the relations of the United States with the major states of Asia and with those smaller countries 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. Deals primarily with the period since 1945.

381. INTERNATIONAL ORGANIZATION. Fall term. Credit four hours. Open to sophomores and upperclassmen. M W F 9. Mr. BRIGGS.

An analysis of some international governmental procedures and institutions. Particular attention will be given to the background, organization, and operation of the United Nations, with emphasis on political and legal problems.

471-472. INTERNATIONAL LAW. Throughout the year. Credit four hours a term. Open to qualified upperclassmen. M W F 11. Mr. BRIGGS.

A systematic study of the nature, development, and judicial application of international law. Attention will be given to the role of law in the relations of States. Cases, documentary analysis, and discussions.

[478. THE FOREIGN POLICY OF CHINA. Spring term. Credit four hours. Open to upperclassmen who have taken Government 347. M W F 8. Mr. LEWIS. Not offered in 1963-1964.

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.]

HONORS PROGRAM

492. JUNIOR HONORS SEMINAR. Spring term. Credit four hours. Open only to juniors accepted as candidates for Honors in government. Hours to be arranged. Mr. HACKER. An examination of the development and scope of the study of government, combined with training in advanced research.

493-494. **SENIOR HONORS PROGRAM.** Throughout the year. Credit six hours each term. Prerequisite, Government 492. Hours to be arranged. Mr. ALTSHULER.

Extensive reading in the fields of government with tutorial supervision, seminar work, and the preparation of an Honors thesis.

SUPERVISED STUDY

499. **READINGS.** Throughout the year. Credit four hours each term. Any member of the Department.

SEMINARS

511. **SEMINAR IN POLITICAL PARTIES AND ELECTIONS.** Fall term. Credit four hours. Open to graduate students and to seniors by consent of instructor. Hours to be arranged. Mr. LOWI.

516. **SEMINAR IN CONSTITUTIONAL LAW AND JURISPRUDENCE.** Spring term. Credit four hours. Open to graduate students and qualified seniors who have taken Government 313. Hours to be arranged. Mr. BERNS.

521. **SEMINAR IN PROBLEMS OF PUBLIC ADMINISTRATION.** Fall term. Credit four hours. Open to graduate students and qualified seniors. Hours to be arranged. Mr. ALTSHULER.

527-528. **SEMINAR IN AMERICAN POLITICAL THOUGHT AND INSTITUTIONS.** Throughout the year. Credit four hours. Open to graduate students and qualified seniors. Hours to be arranged. Messrs. ROSSITER and HACKER.

534. **SEMINAR IN THE POLITICS OF THE SOVIET UNION.** Spring term. Credit four hours. Open to graduate students and qualified seniors who have taken Government 333. Hours to be arranged. Mr. FISCHER.

537. **SEMINAR IN THE POLITICAL PROBLEMS OF MODERNIZATION.** Fall term. Credit four hours. Open to graduate students and qualified seniors. Hours to be arranged. Mr. FISCHER.

541-542. **SEMINAR IN COMPARATIVE GOVERNMENT.** Throughout the year. Credit four hours each term. Open to graduate students and to qualified seniors. Hours to be arranged. Mr. MULLER.

547. **SEMINAR IN THE POLITICS OF CHINA.** Spring term. Credit four hours. Open to graduate students and to seniors who have taken Government 347 and secured the consent of the instructor. Hours to be arranged. Mr. LEWIS.

[552. **SEMINAR IN POLITICAL THEORY.** Spring term. Credit four hours. Open to graduate students and to seniors with the consent of the instructor. Hours to be arranged. Mr. BERNS. Not offered in 1963-1964.]

555-556. **SEMINAR IN POLITICAL THEORY.** Throughout the year. Credit four hours each term. Open to graduate students and to qualified seniors. Hours to be arranged. Mr. BLOOM.

561-562. **SEMINAR IN POLITICAL THEORY.** Throughout the year. Credit four hours each term. Open to graduate students and to qualified seniors. Hours to be arranged. Mr. EINAUDI.

572. **SEMINAR IN INTERNATIONAL RELATIONS.** Fall term. Credit four hours. Open to graduate students and qualified seniors who have taken Government 372 and secured the consent of the instructor. Hours to be arranged. Mr. LEWIS.

576. **SEMINAR IN INTERNATIONAL LAW AND INTERNATIONAL ORGANIZATION.** Spring term. Credit four hours a term. Open to graduate students and law students. Hours to be arranged. Mr. BRIGGS.

577. **SEMINAR IN THE INTERNATIONAL RELATIONS OF ASIA.** Fall term. Credit four hours. Open to graduate students and qualified seniors who have taken Government 377 or Government 478 and secured the consent of the instructor. Hours to be arranged. Mr. KAHIN.

[583. **SEMINAR IN THE FOREIGN POLICY OF CHINA.** Fall term. Credit four hours. Open to graduate students and to seniors who have taken Government 478. Hours to be arranged. Mr. LEWIS. Not offered in 1963-1964.]

644. **SEMINAR IN POLITICAL PROBLEMS OF SOUTHEAST ASIA.** Spring term. Credit four hours. Open to graduate students and qualified seniors who have taken Government 344 and secured the consent of the instructor. Hours to be arranged. Mr. KAHIN.

HISTORY

Mr. KNIGHT BIGGERSTAFF, *Chairman*; Messrs. DAVID B. DAVIS, EDWARD W. FOX, PAUL W. GATES, RICHARD GRAHAM, HENRY GUERLAC, DONALD KAGAN, WALTER F. LAFEVER, FREDERICK G. MARCHAM, CURTIS P. NETTELS, WALTER M. PINTNER, EUGENE F. RICE, JR., WALTER M. SIMON, BRIAN TIERNEY, and L. PEARCE WILLIAMS.

For admission to the history major a student must have completed an Introduction to Western Civilization, and have earned grades of 75 or better in this and in any other history courses taken. To complete the major a student must take twenty-eight hours of history courses numbered 300 or above, plus two courses numbering 300 or above offered by other departments that relate to the eight-hour concentration in one particular field of history mentioned under (b) below. Among the history courses a major must complete before graduation are: (a) six hours each in American history, in European history since 1500 (including English and Russian history), and in a history other than that of the modern West (e.g., ancient, medieval, Chinese); and (b) sixteen hours of history courses numbered above 330, of which eight hours must be in one particular field of history (e.g., American, early modern European, Latin American, history of science). The same course may be used to satisfy the requirements under (a) and (b). For example: a student who chooses American history as the particular field under (b) could satisfy that requirement in part by History 473 and at the same time satisfy in part the requirement under (a).

Honors program: The purpose is to offer an opportunity for unusually able students to do independent work under suitable guidance by relieving them of a portion of their course obligations. To this end the Department of History offers a four-term sequence of instruction, for a total of twelve credit hours, leading to the degree of B.A. with Honors, or High Honors, in History. This sequence includes training in historical method, the writing of an Honors essay, and independent reading in the candidate's fields of special interest. Honors candidates will take History 397 in the fall term of their junior year, enroll in History 398-497 during the following two terms, and take History 498 (a supervised reading course in preparation for the comprehensive examination) during their last term in the University (see special section below headed "Honors Program"). At the discretion of instructors, they may also be admitted to graduate seminars in their senior year.

The minimum requirements for admission to candidacy for Honors include (a) a cumulative average of 80 in all academic courses; (b) a cumulative average of 85 in courses in the humanities and social sciences; (c) enrollment and superior performance in at least one course in history before the spring term of the sophomore year.

The criteria for the award of the degree with Honors include (a) maintenance of grades of 85 or better in all history and related courses; (b) completion of an Honors essay of high quality; (c) passing a comprehensive examination at the end of the senior year.

The Honors program is supervised during 1962-1963 by a departmental committee consisting of Messrs. Fox (chairman), Gates, and Williams. Applications for candidacy in 1963-1964 should be made to the Department of History prior to preregistration in the spring term of 1963. Sophomores who expect to be candidates for Honors are urged to apply for admission to the major early in the first term of their sophomore year.

Any year course in history from History 101-102 to History 323-324 inclusive will satisfy the group requirement under Distribution I.

105-106. INTRODUCTION TO WESTERN CIVILIZATION. Throughout the year. Credit three hours a term. For freshmen and sophomores; open to juniors and seniors by permission only. May not be taken for credit by students who have taken History 101-102. First term prerequisite to second except by permission. T Th S 9. Mr. RICE and Assistants. 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.

301-302. ANCIENT HISTORY. Throughout the year. Credit three hours a term. Open to sophomores. History 301 is not prerequisite to History 302. M W F 11. Mr. KAGAN.

A survey of ancient history from the beginnings of civilization in the valleys of the Near East to the decline of the Roman Empire.

303-304. MEDIEVAL HISTORY. Throughout the year. Credit three hours a term. Open to sophomores. History 303 is not prerequisite to History 304. T Th S 10. Mr. TIERNEY.

A survey of the main trends of political, economic, intellectual, and religious development in Europe from the fourth century to the fifteenth.

307-308. ENGLISH HISTORY FROM ANGLO-SAXON TIMES TO THE PRESENT. Throughout the year. Credit three hours a term. Open to sophomores. Course 307 not prerequisite to 308. T Th S 11. Mr. MAR-CHAM.

Traces the growth of government, economic life, religion, the arts, and society among the English people. Illustrates in the history of one nation some of the principal developments of Western civilization since early modern times, such as the nation-state, the late Renaissance, the industrial revolution, the overseas empire, and state socialism. Some of

the written work is designed to give elementary training in the interpretation of documentary evidence. Work for the first term ends with the civil wars of the seventeenth century.

309-310. HISTORY OF RUSSIA. Throughout the year. Credit three hours a term. Open to sophomores. History 309 not prerequisite to History 310. M W F 9. Mr. PINTNER.

A survey of Russian history from the earliest times until the present day. The development of a centralized autocratic state and its relationships to the major groups in the population are stressed. First term, the period prior to the nineteenth century; second term, the nineteenth and twentieth centuries. Although History 309 is not a prerequisite for 310, students who plan to take one semester only are urged to take 309 rather than 310.

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 11. Messrs. GUERLAC and 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.

315-316. AMERICAN HISTORY. Throughout the year. Credit three hours a term. Open to sophomores. History 315 is not prerequisite to History 316. M W F 10. Mr. DAVIS.

A general survey of American history from the colonial beginnings through the Civil War in the first semester and from Reconstruction to the present in the second semester.

319-320. HISTORY OF LATIN AMERICA. Throughout the year. Credit three hours a term. Open to sophomores. History 319 not prerequisite to History 320. T Th S 12. Mr. GRAHAM.

A survey of political, social, economic, and intellectual developments in Latin America from the coming of the Europeans to the present day.

323. HISTORY OF CHINESE CIVILIZATION PRIOR TO THE NINETEENTH CENTURY. Fall term. Credit three hours. Open to sophomores. M W F 12. Mr. BIGGESTAFF.

A rapid survey of the more significant Chinese cultural developments from earliest times until the establishment of formal relations with the West.

324. HISTORY OF CHINESE CIVILIZATION: NINETEENTH AND TWENTIETH

CENTURIES. Spring term. Credit three hours a term. History 323 not prerequisite to History 324. Open to sophomores. M W F 12. Mr. BIGGESTAFF.

A detailed survey 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 ideological invasion is considered, followed by a more thorough study of the revolutionary changes that have culminated in the People's Republic.

325-326. HISTORY OF INDIA. Throughout the year. Credit three hours a term. Open to sophomores. History 325 not prerequisite to History 326. M W F 11. Mr. GUHA.

The first semester is to be devoted to the premodern period; the second semester to the modern period.

401. SUPERVISED READING. Either term. Credit two hours. Prerequisite: permission of the Chairman of the Department. Open only to seniors with grades of 80 or better in virtually all courses in the humanities and social sciences.

402. SUPERVISED RESEARCH. Either term. Credit four hours. Prerequisite: permission of the Chairman of the Department. Open only to seniors with grades of 80 or better in virtually all courses in the humanities and social sciences.

431. THE ROMAN REPUBLIC, 133-30 B.C. Fall term. Credit three hours. Prerequisite, History 302 or consent of the instructor. M W 2-3:30. Mr. KAGAN.

An intensive study of the political, economic, social, and intellectual history of Rome from the Gracchi to the end of the Republic.

432. GREEK HISTORY, 500-336 B.C. Spring term. Credit four hours. Prerequisite, History 301 or consent of the instructor. M W 2-3:30. Mr. KAGAN.

The political, economic, social and intellectual history of the Greek world in the Classical period.

[433. THE ROMAN EMPIRE, 30 B.C.-A.D. 180.] Fall term. Credit four hours. Prerequisite, History 302 or consent of the instructor. M W 2-3:30. Mr. KAGAN. Not offered in 1963-1964.]

[434. HELLENISTIC AGE.] Spring term. Credit four hours. Prerequisite, History 301-302 or consent of the instructor. M W 2-3:30. Mr. KAGAN. Not offered in 1963-1964.]

[336. MEDIEVAL CULTURE, 1150-1300.] Spring term. Credit four hours. Prerequisite,

History 303-304 or consent of the instructor. T Th S 12. Mr. TIERNEY. Not offered in 1963-1964.]

437. CHURCH AND STATE DURING THE MIDDLE AGES. Fall term. Credit four hours. Prerequisite, History 303-304 or consent of the instructor. T Th S 12. Mr. TIERNEY.

The structure of secular and ecclesiastical government and the relations between them in the period 1000-1300.

438. FRANCE IN THE HIGH MIDDLE AGES. Spring term. Credit four hours. Prerequisite, History 303-304 or consent of the instructor. T Th S 12. Mr. TIERNEY.

Topics of intellectual and social history considered against the political background of the growth of the French monarchy, 1100-1250.

[440. FRANCE AND WESTERN EUROPE IN THE FIFTEENTH AND SIXTEENTH CENTURIES. Spring term. Credit four hours. Prerequisite, History 343-344 or consent of the instructor. T Th S 11. Mr. RICE. Not offered in 1963-1964.]

[341. THE ITALIAN RENAISSANCE. Fall term. Credit four hours. Prerequisite, at least six hours in European history. T Th S 11. Mr. RICE. Not offered in 1963-1964.]

343-344. EUROPE IN THE AGE OF THE REFORMATION AND COUNTER-REFORMATION. Throughout the year. Credit four hours a term. Prerequisite, at least six hours in European history. T Th S 11. Mr. RICE.

A study of European politics and culture in the era of the great religious movements of the sixteenth and early seventeenth centuries.

444. THE CENTURY OF ENLIGHTENMENT. Spring term. Credit four hours. A reading knowledge of French is required. Prerequisite, six hours in European history. M W F 10. Mr. GUERLAC.

France in the eighteenth century, with special attention to the thinkers of the Age of Reason from Bayle and Fontenelle to the French Revolution.

[445. SOURCES OF EIGHTEENTH-CENTURY FRENCH HISTORY. Fall term. Credit four hours. Prerequisite, a reading knowledge of French and permission of the instructor. T 2-5. Mr. GUERLAC. Not offered in 1963-1964.]

[446. THE OLD REGIME IN FRANCE, 1660-1789. Spring term. Credit four hours. Prerequisite, a reading knowledge of French and six hours in European history. M W F 10. Mr. GUERLAC. Not offered in 1963-1964.]

[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 12. Mr. TIERNEY. Not offered in 1963-1964.]

[348. ENGLISH CONSTITUTIONAL HISTORY, II: SINCE 1485. Spring term. Credit four hours a term. Prerequisite, History 307-308, History 347 or consent of the instructor. T Th S 9. Mr. MARCHAM. Not offered in 1963-1964.]

449. HISTORY OF ENGLAND UNDER THE TUDORS AND STUARTS. Fall term. Credit four hours. Prerequisite, History 307-308 or consent of the instructor. T Th S 9. Mr. MARCHAM.

A study of English history from 1485 to 1688 in which equal attention will be given to political, constitutional, economic, and cultural changes. Many of the principal prose works, poems, and plays of the period will be studied for the information they give concerning the life of the times.

450. HISTORY OF ENGLAND IN THE NINETEENTH AND TWENTIETH CENTURIES. Spring term. Credit four hours. Prerequisite, History 307-308 or consent of the instructor. T Th S 9. Mr. MARCHAM.

A study of Great Britain in the period since the Napoleonic Wars. Primary attention to cultural, governmental, and economic change in Great Britain. Will also consider the relationship between Great Britain and the Empire and Commonwealth as well as the role of these communities in world history.

351. EUROPE IN THE NINETEENTH CENTURY. Fall term. Credit four hours. Prerequisite, History 102, 104 or 106, or consent of the instructor. M W F 10. Mr. Fox

An intermediate-level course in European history from the beginning of the French and Industrial Revolutions to 1900, stressing the influence of those two revolutions on the political and social development of European civilization. Conducted by informal lectures and discussions, it will assume some familiarity with the narrative history of the period.

352. EUROPE IN THE TWENTIETH CENTURY. Spring term. Credit four hours. Prerequisite, History 102, 104, 106 or 351, or consent of the instructor. M W F 10. Mr. Fox.

An intermediate-level course in European history since 1900, stressing the interaction between European politics and Europe's relations with the rest of the world. Conducted by informal lectures and discussions, it will assume a knowledge of the narrative history

of the period and will require extensive reading as a basis for exercises in historical interpretation.

551. EVOLUTION OF THE FRENCH REPUBLIC. Fall term. Credit four hours. A reading knowledge of French is required. Open to seniors with the consent of the instructor and to graduate students. W F 2-3:30. Mr. Fox.

Beginning with a rapid review of the history of France in the nineteenth century it will emphasize the Third, Fourth, and Fifth Republics. A discussion course conducted at an advanced level.

[553. **THE EUROPEAN REVOLUTION 1789-1848.** Fall term. Credit four hours. A reading knowledge of French is required. W F 2-3:30. Mr. Fox. Not offered in 1963-1964.]

554. THE MODERNIZATION OF EUROPE. Spring term. Credit four hours. Open to graduate students and, with the consent of the instructor, to specially qualified seniors. W F 2-3:30. Mr. Fox.

An advanced discussion course in Nineteenth Century Europe, stressing interpretation and bibliography. It will assume a working knowledge of the narrative history of the period and will require extensive reading.

356. HISTORY OF MODERN GERMANY. Spring term. Credit four hours. Prerequisite, six hours in European history. T Th S 10. Mr. SIMON.

An intensive discussion course on German history mainly since the French Revolution.

[458. **INTELLECTUAL HISTORY OF EUROPE IN THE NINETEENTH CENTURY.** Spring term. Credit four hours. T Th S 10. Mr. SIMON. Not offered in 1963-1964.]

461. HISTORY OF RUSSIAN FOREIGN RELATIONS FROM THE FIFTEENTH CENTURY. Fall term. Credit four hours. Prerequisite, History 309-310 or permission of the instructor. M 2-4; third hour to be arranged. Mr. PINTNER.

Deals with the nature of Russia's relationships with other powers, particularly with the question of to what extent these relationships have changed in the past 500 years.

462. THE PEASANTRY IN RUSSIAN HISTORY. Spring term. Credit four hours. Prerequisite, History 309-310, or permission of the instructor. M 2-4; third hour to be arranged. Mr. PINTNER.

Considers the role of the peasantry throughout the entire course of Russian history, from the Kievan period to the present day. Special at-

tention will be devoted to the various methods used by the state in the economic exploitation and political control of the population.

466. ORIGINS OF MODERN SCIENCE. Spring term. Credit four hours. Prerequisite, History 311-312 or consent of the instructor. T 2-5. Mr. GUERLAC.

Reading and discussion of scientific classics important for understanding the Scientific Revolution of the seventeenth century from Galileo to Newton.

[367-368. **SCIENCE AND THE MODERN WORLD.** Throughout the year. Credit four hours a term. Prerequisite, History 101-102 or 105-106 plus fulfillment of the science requirement, or History 311-312. M W F 2. Mr. WILLIAMS. Not offered in 1963-1964.]

369-370. SCIENCE SINCE 1850. Throughout the year. Credit four hours a term. Prerequisite, either an intense interest in the history of modern science (see the instructor) or two years of college science. Course 369 is not prerequisite to 370. M W F 9. Mr. WILLIAMS.

An historical account of the development of the physical and biological sciences since the enunciation of the Principle of the Conservation of Energy. In the fall term, the growth of physics and chemistry will be considered with special emphasis upon the historical and philosophical background of the atomic theory, quantum mechanics, relativity, and the nature of the chemical bond. The spring term will be devoted to the exploration of the effects of evolutionary theory upon the life sciences and to the application of physical and chemical methods of these sciences. Students will read the classic papers in these various areas.

473. AMERICAN COLONIAL HISTORY TO 1763. Fall term. Credit four hours. M W F 11. Mr. NETTELS.

474. THE AGE OF WASHINGTON, 1763-1800. Spring term. Credit four hours. M W F 11. Mr. NETTELS.

The struggle for American independence, the making of the Constitution, the founding of the federal government, and the shaping of national policies.

[477-478. **AMERICAN CULTURAL AND INTELLECTUAL HISTORY.** Throughout the year. Credit four hours a term. M W F 9. Mr. DAVIS. Not offered in 1963-1964.]

379-380. RECENT AMERICAN HISTORY. Throughout the year. Credit four hours a term. T Th S 9. Mr. —.

[481-482. **AMERICAN HISTORY: HISTORY OF THE WEST.** Throughout the year. Credit

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four hours a term. M W F 12. Mr. GATES. Not offered in 1963-1964.]

383-384. HISTORY OF AMERICAN FOREIGN RELATIONS. Throughout the year. Credit four hours a term. Prerequisite, History 315-316, 317-318, or permission of the instructor. T Th S 11. Mr. —.

[486. MOTIVATIONS OF AMERICAN FOREIGN POLICY. Spring term. Credit four hours. Prerequisite, consent of the instructor. Th 3-5. Mr. LAFFEBER. Not offered in 1963-1964.]

487. MEXICO IN THE TWENTIETH CENTURY. Fall term. Credit four hours. Prerequisite, History 319-320 or consent of the instructor. T Th S 10. Mr. GRAHAM.

A study of the Mexican Revolution of 1910-1920 and the working out of its political, social, economic, and intellectual implications up to the present time.

488. ARGENTINA, BRAZIL, AND CHILE IN THE TWENTIETH CENTURY. Spring term. Credit four hours. Prerequisite, History 319-320 or consent of the instructor. T Th S 10. Mr. GRAHAM.

A detailed examination of social, economic, and intellectual developments in Argentina, Brazil, and Chile during the last fifty years, with some reference to politics and international relations.

491-492. MODERNIZATION OF CHINA. Throughout the year. Credit four hours a term. Prerequisite, History 162 or 324 with grade of 85 or better or permission of the instructor; 491 prerequisite to 492. Conducted as a seminar. M 4-6. Mr. BIGGERSTAFF.

Topical study of the impact of Western civilization upon traditional China and of the changes in China during the first half of the twentieth century.

495. SOUTHEAST ASIAN HISTORY PRIOR TO THE PERIOD OF EUROPEAN INFLUENCE. Fall term. Credit four hours. Prerequisite, one course on Asia. T Th S 10. Mr. —.

496. SOUTHEAST ASIAN HISTORY DURING THE PERIOD OF EUROPEAN DOMINANCE. Spring term. Credit four hours. Prerequisite, one course on Asia. T Th S 10. Mr. —.

HONORS PROGRAM

397. HONORS PROSEMINAR. Fall term. Credit two hours. Open only to juniors who

have been accepted by the Department as candidates for Honors in history. M 4-6. Mr. WILLIAMS.

Training and practice in the use of historical materials and in historical writing; discussion of various methods of research and various types of historical explanation. Considerable time will be devoted to the systematic composition of a term paper.

398-497. HONORS GUIDANCE. Spring and fall terms. Credit four hours a term. Prerequisite, History 397.

These two terms will be devoted to the writing of an Honors essay under the guidance of a member of the department.

498. SUPERVISED READING FOR HONORS. Spring term. Credit two hours. Prerequisite, History 497. Major adviser.

Extensive reading in preparation for a comprehensive oral examination.

GRADUATE SEMINARS

501. INTRODUCTION TO HISTORICAL THEORY AND PRACTICE. Fall term. Credit four hours. Required of all entering graduate students in history (exemption may be granted by the History Graduate Student Adviser to students who have already completed a satisfactory equivalent). Not open to undergraduates. T Th 2-3:30. Mr. SIMON and others.

Problems of historical thought, research, and writing as illustrated by historians representative of various cultures, periods and schools. Intensive supervision in the preparation of a term paper.

631-632. SEMINAR IN ANCIENT HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. KAGAN.

637-638. SEMINAR IN MEDIEVAL HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. TIERNEY.

641-642. SEMINAR IN EUROPEAN HISTORY DURING THE ERA OF THE REFORMATION. One or two terms. Credit four hours a term. Hours to be arranged. Mr. RICE.

647-648. SEMINAR IN TUDOR AND STUART HISTORY. One or two terms. Credit four hours. Hours to be arranged. Mr. MARCHAM.

651-652. SEMINAR IN MODERN EUROPEAN HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. Fox.

657-658. SEMINAR IN MODERN EURO-

PEAN HISTORY. One or two terms. Credit four hours. Th 4-6. Mr. SIMON.
Course 658 will deal with topics in German history.

661-662. SEMINAR IN RUSSIAN HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. PINTNER.

665-666. SEMINAR IN THE HISTORY OF EARLY MODERN SCIENCE. One or two terms. Credit four hours a term. Hours to be arranged. Mr. GUERLAC.

667-668. SEMINAR IN THE HISTORY OF SCIENCE DURING THE NINETEENTH AND TWENTIETH CENTURIES. One or two terms. Credit four hours a term. Hours to be arranged. Mr. WILLIAMS.

671-672. SEMINAR IN EARLY AMERICAN HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. NETTELS.

675-676. SEMINAR IN AMERICAN CULTURAL AND INTELLECTUAL HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. DAVIS.

[679-680. SEMINAR IN THE HISTORY OF THE AMERICAN WEST. One or two terms. Credit four hours a term. Hours to be arranged. Mr. GATES. Not offered in 1963-1964.]

683. SEMINAR IN THE HISTORY OF AMERICAN FOREIGN RELATIONS. Fall term. Credit four hours. Hours to be arranged. Mr. ———.

687-688. SEMINAR IN LATIN AMERICAN HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. GRAHAM.

691-692. SEMINAR IN MODERN CHINESE HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. BIGGERSTAFF.

693-694. SEMINAR ON TOPICS IN INDIAN HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. GUHA.

695-696. SEMINAR IN SOUTHEAST ASIAN HISTORY. One or two terms. Credit four hours a term. Hours to be arranged. Mr. ———.

HISTORY OF ART

Mr. A. S. ROE, *Chairman*; MESSRS. N. A. PATTILLO, JR., WEBSTER SMITH, ALAN R. SOLOMON, JAMES H. TURNURE, F. O. WAAGE, MARTIE W. YOUNG.

MAJOR REQUIREMENTS

Students who wish to do their major work in the History of Art will normally be expected to have completed the 201-202 sequence. However, those students who have taken the 103-104 sequence as freshmen and whose grades are satisfactory to the department may petition to elect courses in the 301-304 sequence, or the 305-306 sequence in their sophomore year, and one such sequence shall be deemed satisfactory prerequisite for the major. It is also recommended that the student should have fulfilled as part of the underclass distribution requirement one of the year courses in European history offered by the Department of History (101-102 or 105-106).

In their upperclass years, the following requirements shall be met: at least thirty-two hours of courses in the History of Art at the 300 or 400 level (of which at least eight hours must be at the 400 level) and eight additional hours at the 300 or 400 level, which may be further departmental offerings, or in some related area approved by the student's major adviser. The upperclass requirements will normally include the 305-306 sequence, if not taken in sophomore year.

An applicant for the degree of Bachelor of Arts with Honors in the History of Art should apply at the departmental office not later than the first week of classes of his junior year. In order to be eligible for the Honors program, the candidate must have a cumulative average of 80 for all courses in the College and of 85 for courses in the Department of the History of Art (which will normally include one or two of the courses at the 300 level open to specially qualified sophomores). The candidate is required to complete 301-302, 303-304, 491-492, 493-494, and to offer at least the eight hours of courses at the 400 level required of all majors. A senior thesis and a senior comprehensive examination complete the requirements. Further information in regard to the Honors program may be obtained at the department office.

The group requirement in the expressive arts may be satisfied with History of Art 103-104, 201-202, or 103-204.

I. INTRODUCTORY COURSES

103. INTRODUCTION TO THE ANALYSIS OF WORKS OF ART. Either term. Credit three hours. T Th 9, 10, 11; also a third hour for each section to be arranged. Mr. YOUNG and members of the Department.

An introduction to the problems of experiencing works of art. Students will meet in small groups of from fifteen to twenty for discussion and examination of works of art, largely through reproductions, in order to provide training in the techniques of visual analysis. A large part of the course will be devoted to the problems of articulation of the visual experience. Conceived as a preparation for the study of art history, the course itself will not, however, approach works of art in the usual historical context.

This course may be considered as a useful preparation for the study of art history, or it may also be regarded as a course of general interest with applications outside the field. No previous experience in the fine arts is required. Short papers will be assigned. Open to freshmen and sophomores only. With 104, will fulfill Distribution I requirement, but not the requirement for majoring in the department.

104. GREAT MASTERS OF WESTERN ART. Spring term. Credit three hours. T Th S 10. Mr. ROE.

Will not attempt a historical survey, but will be devoted to a discussion at some length of the works of a selected group of major masters ranging in date from the Renaissance to modern times (Van Eyck, Raphael, Michelangelo, Titian, Velasquez, Rubens, Rembrandt, Goya, Cézanne, Degas, etc.). Emphasis will be upon the utilization of the various techniques of the visual media as expressive vehicles by artists whose work has been generally recognized as of enduring value. While in general the emphasis will be upon painting, the work of certain major masters of sculpture and of the graphic arts will be discussed. Open to freshmen and sophomores only (*not* to be taken in *same semester* as 103; however 103 is *not* a prerequisite.)

201-202. INTRODUCTION TO ART. Throughout the year. Credit three hours a term. History of Art 201 is prerequisite to History of Art 202. M W F 12. Mr. TURNURE.

Intended to foster an understanding of a wide range of material by concentrating on selected examples of painting, sculpture, and architecture of the highest quality. The lectures will follow a generally chronological pattern. The fall term will begin with man's early artistic efforts and will continue into the Renaissance.

The emergence of the modern point of view from the Renaissance to the present will be discussed in the spring term. Open to sophomores; also to upperclass students as an elective. Normally required of all students who plan to major in the History of Art (however, see "Major Requirements" above). May also be offered in fulfillment of the Distribution I requirement. Students who can satisfy the department that they have had previous work equivalent to 103-104, may petition to take 201-202 as freshmen.

204. INTRODUCTION TO PAINTING AND SCULPTURE. Spring term. Credit three hours. Open to sophomores and upperclass students, except those who have had History of Art 202 (formerly 102). T Th S 11. Preliminary examinations will be held at 7 p.m. on March 5 and April 16, 1964. Mr. PATTILLO.

A survey of western European art beginning with the fourteenth century and dealing chiefly with painting.

[281. INTRODUCTION TO ASIAN ART. Fall term. Credit three hours. M W F 11. Mr. YOUNG. Not offered in 1963-1964.

A consideration of the major artistic achievements of India, Southeast Asia, China, and Japan, with particular reference to the aesthetic and religious principles underlying the development of the art of these countries. Attention will be focused on selected masterpieces of painting, sculpture, and architecture in order to exemplify the main stylistic and cultural trends of the most important periods.]

297. RENAISSANCE, BAROQUE, AND MODERN SCULPTURE. Fall term. Credit three hours. M W F 11. Mr. SMITH.

A study of the main course of development of sculpture in Europe and America from fifteenth-century Italy to the present day, with emphasis in each period upon the works of a few representative artists.

II. COURSES AT INTERMEDIATE LEVEL

Intended primarily for upperclassmen; however, those marked with an asterisk () will be open at the discretion of the Department to sophomores who have completed 103-104 in the freshman year with a grade satisfactory to the Department.*

[*301. ART OF THE ANCIENT WORLD. Fall term. Credit four hours. M W F 9. Mr. WAAGE. Not offered in 1963-1964.]

[*302. ART OF THE MIDDLE AGES. Spring term. Credit four hours. M W F 9. Mr. TURNURE. Not offered in 1963-1964.]

***303. ART OF THE EARLY AND HIGH RENAISSANCE.** Fall term. Credit four hours. M W F 9. Mr. SMITH.

Painting, sculpture, and architecture in Europe in the fifteenth and sixteenth centuries.

***304. ART OF THE SEVENTEENTH AND EIGHTEENTH CENTURIES.** Spring term. Credit four hours. M W F 9. Mr. ROE.

The modifications of Renaissance styles in architecture, painting, and sculpture in Italy and their diffusion to the countries of western and northern Europe.

This group of courses is intended to present in some detail the major trends and monuments in the artistic development of western culture during four basic periods leading up to the present. Taken as a sequence they will form a foundation in depth for more advanced work in specific areas. They may, however, be taken individually and as such are intended to be appropriate electives for students pursuing curricula in related areas of literature, languages, history, etc.

***305-306. INTRODUCTION TO ARCHITECTURE.** Throughout the year. Credit four hours a term. T Th S 9. Mr. PATILLO.

A survey of the architecture of the Western world from ancient times to the present. The first term ends with the Romanesque period; the second begins with the Gothic.

313. PREHISTORIC ART. Fall term. Credit four hours. M W F 12. 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: THE ART OF TRIBAL SOCIETIES. Spring term. Credit four hours. M W F 12. Mr. WAAGE.

Chronologically and culturally a continuation of History of Art 313, but treated primarily in terms of the painting and sculpture of Africa. Other bodies of primitive art, e.g., Australian, Eskimo, Northwest Coast, will be included to round out a consideration of the shaping and use of art forms to satisfy group needs in cultures where art was an indispensable element of everyday life.

321. GREEK SCULPTURE. Fall term. Credit four hours. M W F 10. Mr. WAAGE.

A study of the sculpture of the first culture whose artistic forms developed beyond those of

the archaic stage; the causes of this advance and the factors which conditioned it. Both the Hellenic and the Hellenistic periods are covered.

322. ART OF THE ROMAN EMPIRE. Spring term. Credit four hours. M W F 10. 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.

342. THE ART OF THE NORTHERN RENAISSANCE. Spring term. Credit four hours. T Th S 10. Mr. TURNURE.

A general investigation of the development of realism in Flanders and Germany from its beginnings in the Middle Ages to the seventeenth century. Special attention will be given to major artists such as Jan van Eyck and Albrecht Dürer.

[343. FLORENTINE AND CENTRAL ITALIAN PAINTING. Fall term. Credit four hours. T Th S 11. Mr. PATILLO. Not offered in 1963-1964.

A study of the major artists from Cavallini and Cimabue to Michelangelo and Raphael.]

345. VENETIAN AND NORTH ITALIAN PAINTING. Fall term. Credit four hours. T Th S 11. Mr. PATILLO.

Beginning with the early years of the fifteenth century and ending in the latter part of the sixteenth with the works of Tintoretto and Veronese.

347. ITALIAN RENAISSANCE ARCHITECTURE. Spring term. Credit four hours. M W F 12. Mr. SMITH.

A study of important buildings together with related architectural drawings and architectural theory of the fifteenth and sixteenth centuries.

[348. HIGH RENAISSANCE AND MANNERISM. Spring term. Credit four hours. M W F 10. Mr. SMITH. Not offered in 1963-1964.

Sixteenth-century painting, sculpture, and architecture, especially in Italy, but with some consideration of France, Spain, Germany, and the Netherlands.]

354. SEVENTEENTH-CENTURY PAINTING. Fall term. Credit four hours. T Th S 10. Mr. TURNURE.

A study of the major European schools and masters of the century of the Baroque.

362. EUROPEAN PAINTING OF THE NINETEENTH CENTURY. Fall term. Credit four hours. T Th S 12. Mr. ROE.

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A study of major trends in European painting from Goya to Cézanne. Emphasis will be upon French painting from the era of the French Revolution to the Post-Impressionists, but significant developments and major artistic personalities in other European countries will also be considered.

363. MODERN FRENCH PAINTING. Spring term. Credit four hours. Registration limited. T Th S 12. Mr. SOLOMON.

Major tendencies in modern French painting from Cézanne to the present. The lectures will cover such key figures as Cézanne, Picasso, and Matisse in great detail. The emphasis will be placed on significant new attitudes toward form and content which influence painters in other countries, as well as the other arts.

[364. TWENTIETH-CENTURY ART. Spring term. Credit four hours. Prerequisite, History of Art 363. T Th S 12. Mr. SOLOMON. Not offered in 1963-1964.

Modern painting in Germany, Italy, the United States, and other countries will be covered, together with the major architects and sculptors of Europe (including France) and America.]

[375. INTRODUCTION TO AMERICAN ART. Fall term. Credit four hours. M W F 11. Mr. ROE. Not offered in 1963-1964.

A study of the arts in Colonial America and in the United States from earliest examples to the present. Intended as an introduction for more advanced offerings in specific areas, and also as an elective for students pursuing programs in other aspects of American culture. Major trends in American art will be discussed both with regard to their domestic development and in relation to their European prototypes.]

383. ART OF CHINA. Fall term. Credit four hours. M W F 11. Mr. YOUNG.

A survey of painting and sculpture from earliest times to the present, with some consideration of ceramics and the minor arts. The role of Buddhism, Taoism, and Confucianism in determining the aesthetic expression of China will also be discussed.

384. ART OF JAPAN. Spring term. Credit four hours. M W F 11. Mr. YOUNG.

A survey of painting, sculpture, and architecture from earliest times to the modern era. Attention will be paid to the development of the various forms of folk art, wood-block prints, and the decorative tradition.

[386. ARTS OF INDIA AND SOUTHEAST ASIA. Spring term. Credit four hours. M W F 11. Mr. YOUNG. Not offered in 1963-1964.

A survey of painting, sculpture, and architecture in India and Southeast Asia from the earliest times to the present, with some consideration for the early periods of art in Iran and Central Asia. Both the physical and metaphysical aspects of the arts will be studied, with particular attention to the development of Buddhism and Hinduism and their influence in formulating the aesthetic expression in these countries.]

394. ORIGINAL WORKS OF ART. Spring term. For majors and other advanced students. Prerequisite, History of Art 201-202 or equivalents; eight hours of advanced courses in art history; consent of the instructor. Limited to twelve students. F 2-4:30. Mr. SOLOMON.

A nonchronological laboratory course which will meet in the White Art Museum, dealing with original objects in all the arts. Paintings, drawings, prints, sculpture, architecture, and the minor arts will be considered. Lectures, discussions, reports.

395. ENGLISH ART FROM TUDOR TIMES TO THE PRESENT. Fall term. Credit four hours. M W F 10. Mr. ROE.

Emphasis will be focused upon Renaissance influences in architecture and the decorative arts from Inigo Jones to Robert Adam, and also upon the work of major figures of painting from Hogarth and Reynolds to Blake. In particular, attention will be placed on those developments in English art which are most important for their influence upon the arts of Colonial and Early Republican America.

III. COURSES AT ADVANCED LEVEL

The following courses are intended primarily for seniors and graduate students; however, they will be available to juniors majoring in the Department who have satisfactorily completed courses of a more specialized character than 201-202, and they will also be open to other qualified upperclassmen with the consent of the instructor. The classes will meet once a week, and the presentation of reports and papers by all participants will be required.

[425. EGYPTIAN ART AND ARCHAEOLOGY. Fall term. Credit four hours. Prerequisite, consent of the instructor. F 2-4:30. Mr. TURNURE. Not offered in 1963-1964.

Investigation of specific sites, art forms, and symbolism in Pre-Roman Egypt.]

435. GOTHIC ARCHITECTURE. Spring term. Credit four hours. Prerequisites, History of Art 305, 306, or the equivalent (such as the course previously known as Fine Arts 111-112) and consent of the instructor. W 2-4:30. Mr. PATTILLO.

446. LITERARY SOURCES IN THE ITALIAN RENAISSANCE. Spring term. Credit four hours. Prerequisite, consent of the instructor. M 2-4:30. Mr. SMITH.

Reading and interpretation of fifteenth- and sixteenth-century writings on art and artists.

[454. STUDIES IN BAROQUE PAINTING. Spring term. Credit four hours. Prerequisite, consent of the instructor. Th 2-4:30. Mr. TURNURE. Not offered in 1963-1964.

Major personalities in the art of the seventeenth century, including Rembrandt, Rubens, and Caravaggio.]

[461. PROBLEMS IN THE ART OF THE LATE NINETEENTH CENTURY. Fall term. Credit four hours. Prerequisite, Fine Arts 554 (now known as History of Art 363), and consent of the instructor. Th 2-4:30. Mr. SOLOMON. Not offered in 1963-1964.]

463. PROBLEMS IN TWENTIETH-CENTURY ART. Fall term. Credit four hours. Prerequisite, Fine Arts 554 (now known as History of Art 363), and consent of the instructor. Open to students who have had 464. Th 2-4:30. Mr. SOLOMON.

464. PROBLEMS IN TWENTIETH-CENTURY ART. Spring term. Credit four hours. Prerequisite, Fine Arts 554 (now known as History of Art 363), and consent of the instructor. Open to students who have had 463. Th 2-4:30. Mr. SOLOMON.

[472. PROBLEMS IN AMERICAN ART. Spring term. Credit four hours. Prerequisite, History of Art 375 or 395 and consent of the instructor. W 2-4:30. Mr. ROE. Not offered in 1963-1964.]

[483. METHODS OF RESEARCH IN ASIAN ART. Fall term. Credit four hours. Prerequisite, consent of the instructor. T 2-4:30. Mr. YOUNG. Not offered in 1963-1964.

An introduction to advanced study: the methods involved in stylistic and iconographic analysis as applied to Asian art. Readings in the basic bibliographic sources and a discussion of the main aesthetic theories. Original works of art will be used where applicable.]

484. PROBLEMS IN ASIAN ART. Spring term. Credit four hours. Prerequisite, History

of Art 483 or consent of the instructor. T 2-4:30. Mr. YOUNG.

Studies in selected topics. Discussions and reports.

[485. CHINESE PAINTING: THE FIRST MILLENIUM. Fall term. Credit four hours. Prerequisite, consent of the instructor. T 2-4:30. Mr. YOUNG. Not offered in 1963-1964.

A detailed examination of Chinese Painting to the beginning of the Ming Dynasty, with particular attention to the conflict of styles and theories in the Sung period.]

[486. CHINESE PAINTING: THE LATER CENTURIES. Spring term. Credit four hours. Prerequisite, History of Art 383 or History of Art 485 or the consent of the instructor. T 2-4:30. Mr. YOUNG. Not offered in 1963-1964.

A consideration of painting from the Ming Dynasty to the present. Emphasis on the development of critical theories, the rise of the various schools and conflicts, and the problems of the modern period.]

ARCHAEOLOGY

Students who are interested in archaeology are directed to History of Art 201 and 301, and especially to 313, 314, 321, 322, and 425, 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. (See also listings under Anthropology.)

421. NUMISMATICS. Fall term. Credit four hours. Prerequisite, consent of the instructor. T 2-4:30. Mr. WAAGE. Offered in 1963-1964 and alternate years.

Students will work with Greek and Roman coins from the University's collection to acquire a knowledge of their archaeological, artistic, and historical importance

[423. CERAMICS AND THE TECHNIQUES OF EXCAVATION. Fall term. Credit four hours. Prerequisite, consent of the instructor. T 2-4:30. Mr. WAAGE. Offered in 1961-1965 and alternate years.]

HONORS

491-492. HONORS WORK (JUNIORS). Throughout the year. Credit four hours a term. Prerequisite, provisional acceptance as a candidate for Honors. Hours to be arranged. Independent work; preparation of papers.

493-494. HONORS WORK (SENIORS).

Throughout the year. Credit four hours a term. Prerequisite, History of Art 492. Hours to be arranged.

Preparation of a senior thesis.

GRADUATE STUDY

591-592. GRADUATE STUDY. Throughout the year. Credit four or more hours a term. Open only to graduate students.

LITERATURE

Mr. ROBERT M. ADAMS, *Chairman*; MESSRS. BARRY B. ADAMS, ERIC BLACKALL, HARRY CAPLAN, ANTHONY CAPUTI, PAUL DE MAN, J.-J. DEMOREST, H. DIECKMANN, ROBERT DURLING, J. M. ECHOLS, SCOTT ELLEDGE, E. G. FOGEL, GEORGE GIBIAN, DAVID I. GROSSVOGEL, JAMES HUTTON, GORDON M. KIRKWOOD, G. A. MCCALMON, E. P. MORRIS, BURTON E. PIKE, ISAAC RABINOWITZ, HAROLD SHADICK, H. A. WICHELSN.

The Division of Literature offers no major program; certain of its courses may, however, be counted toward the major requirements of the cooperating departments, at their option. For information, consult the sections in this Announcement relating to English, Classics, French, Russian, and German. The group requirements in the humanities may be satisfied by any of the 200 or 300 courses in literature.

201-202. MASTERWORKS OF WESTERN LITERATURE. Throughout the year. Credit three hours a term. First term prerequisite to the second. For sophomores primarily; registration limited to 200 students. M W F 9, 10, 11; T Th S 9, 10, 11. Mr. FOGEL and others.

Informal discussions of selected great books of the Western tradition. Fall term: *The Iliad*, *The Book of Job*, selected Greek tragedies, *The Aeneid*, *The Divine Comedy*, selected medieval romances, *King Lear*. Spring term: *Don Quixote*, *Paradise Lost*, selected plays of Molière, *Faust*, poems of Keats, *Madame Bovary*, short stories by Chekhov and Mann, poems of Yeats.

203-204. ENGLISH TRANSLATIONS OF GREEK AND LATIN CLASSICS. Throughout the year. Credit three hours a term. First term prerequisite to the second. For sophomores and upperclassmen. T 2-4 or Th 2-4 and an hour to be arranged. Mr. HUTTON.

Rapid reading in the best translations with emphasis upon Greek masterpieces, for example, the *Iliad* and the *Odyssey*, the tragedies of Sophocles, and several dialogues of Plato. Translations from the Latin will be chosen for the bearing of the original works upon modern literature.

205. THE LITERATURE OF THE OLD TESTAMENT. Fall term. Credit three hours. For sophomores and upperclassmen. M W F 9. Mr. RABINOWITZ.

Readings, in translation, from books of the Old Testament composed during the pre-exilic and exilic periods of Israel's history (to c. 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.

206. THE LITERATURE OF POST-EXILIC JUDAISM. Spring term. Credit three hours. For sophomores and upperclassmen. M W F 9. Mr. RABINOWITZ.

Readings, in translation, from the later books of the Old Testament, the apocryphal literature, and the Qumran (Dead Sea) Scrolls. An introduction to the thought of the culture which produced both normative Judaism and early Christianity.

209-210. THE LITERATURE OF THE NEW TESTAMENT. Throughout the year. Credit three hours a term. First term not prerequisite to the second. T Th S 10. Mr. ———.

A critical examination of the writings of the New Testament in the light of modern scholarship. No knowledge of Greek is required. Fall term: the Synoptic Gospels and the Fourth Gospel. Spring term: the Acts of the Apostles, the Pauline and other Epistles, the Apocalypse.

218. CLASSIC MYTHS. Spring term. Credit three hours. For sophomores and upperclassmen. T Th S 9. Mr. KIRKWOOD.

The principal cycles of Greek mythology—for example, the myths of the Gods, the Trojan Cycle, the Argive and Theban Cycles—with special emphasis on their representation in literature. Anthropological aspects of the myths and their background in prehistory. Lectures will be illustrated from the collection of slides in the possession of the Department of Classics.

221-222. MASTERPIECES OF RUSSIAN LITERATURE. Throughout the year. Credit three hours a term. First term not prerequisite to the second. M W F 12. Miss CARDEN. An introduction to Russian literature from earliest times to the present.

301-302. DRAMA AND THE THEATRE. Throughout the year. Credit four hours a term. Students with specialized interest in drama or the theatre should elect this course, preferably as early as the sophomore year. M W F 11. Fall term, Mr. CAPUTI. Spring term, Mr. McCALMON.

An introduction to representative types and forms of drama as interpreted in the theatre, designed to increase appreciation of the drama as literature and of the theatre as art form and social institution. Development of the physical stage and of the changing theories and techniques of theatrical production in the important stylistic periods from the Greeks to the present will be traced.

303-304. THE LITERATURE OF EUROPE. Throughout the year. Credit four hours a term. M W F 10. Fall term, Mr. B. B. ADAMS. Spring term, Mr. R. M. ADAMS.

Fall term: reading of such representative authors as Chaucer, Boccaccio, Malory, Erasmus, Castiglione, Machiavelli, Rabelais, Montaigne, Shakespeare, and Donne. Spring term: reading of such representative authors as Pope, Rousseau, Byron, Stendhal, Dostoevsky, Verlaine, Nietzsche, Ibsen, Shaw, and Babel.

307. FOUNDATIONS OF WESTERN THOUGHT. Fall term. Credit three hours. For sophomores and upperclassmen. T Th S 11. Mr. ———.

The beliefs and ideas—religious, moral, social, and scientific—that were current or advanced in the Greek, Roman, and Early Christian period of Western civilization; the history of these ideas and their integration into coherent bodies of thought. Popular thought and practices as well as the ideas of leading thinkers and poets. The influence of these ideas on later thought and their relation to present-day problems. Reading of representative material in translation. Lectures and discussion.

309-310. THE MODERN EUROPEAN NOVEL. Throughout the year. Credit four hours a term. T Th S 10. Fall term, Mr. PIKE. Spring term, Mr. MORRIS.

First semester: works by Goethe, Laclos, Balzac, Flaubert, Zola, Proust, Mann, Robbe-Grillet. Second semester: works by Prévost, Stendhal, Manzoni, Gogol, Gide, Dostoevsky, Kafka. Permission of the instructor required to take the second semester without the first.

311. THE RUSSIAN NOVEL. Fall term. Credit four hours. T Th S 9. Mr. GIBIAN. Works by Gogol, Goncharov, Turgenev, Dostoevsky, and Tolstoy.

312. SOVIET LITERATURE. Spring term. Credit four hours. T Th S 9. Mr. GIBIAN. An introduction to selected works of Russian literature, from 1917 to date, examined as social and historical documents and as works of art.

314. HUMANISM AND THE RENAISSANCE. Spring term. Credit four hours. M W F 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.

315-316. MEDIEVAL LITERATURE. Throughout the year. Credit four hours a term. First term prerequisite to the second. T Th S 10. Mr. DURLING.

Fall term: continental European literature of the twelfth and thirteenth centuries, with special emphasis on Chrétien de Troyes and Gottfried von Strassburg. Spring term: Dante and his circle. Lectures, discussions, and reports.

318. SOUTHEAST ASIAN LITERATURE IN TRANSLATION. Spring term. Credit three hours. T 2-4. Mr. ECHOLS.

321. CHINESE HISTORICAL AND PHILOSOPHICAL LITERATURE IN TRANSLATION. Fall term. Credit three hours. M W F 10. Mr. SHADICK.

Philosophical and historical literature, including Confucian, Taoist, and Buddhist writings.

322. CHINESE IMAGINATIVE LITERATURE IN TRANSLATION. Spring term. Credit three hours. M W F 10. Mr. SHADICK.

Imaginative literature, including poetry, classical prose, fiction, drama, and the new writing of the twentieth century.

329. THREE EXPERIMENTS IN TWENTIETH-CENTURY EUROPEAN LITERATURE. Fall term. Credit four hours. T Th S 10. Mr. GROSSVOGEL.

A study in the three literary movements of expressionism, surrealism, and existentialism. Reading in translation of works by such authors as Brecht, Breton, Camus, Sartre, and Beckett.

330. IDEA AND FORM IN TWENTIETH-CENTURY EUROPEAN LITERATURE. Spring term. Credit four hours. T Th S 10. Mr. GIBIAN.

Study of individual works by Kafka, Joyce, Malraux, and others; poems by Rilke, Lorca, and Apollinaire. Thematic and formal preoccupations of twentieth-century European authors.

[401-402. **PRINCIPLES OF LITERARY CRITICISM.** Throughout the year. Credit three hours a term. Fall term: M 2-4 or W 2-4, Mr. CAPLAN. Spring term: M W F 2, Mr. ——. Not offered in 1963-1964.]

405. **THEORY AND PRACTICE OF TRANSLATION.** Fall term. Credit three hours. M W 11. Mr. ADAMS.

Studies of various translations into and out of English; versions, interpretations and imitations. Periodic practice in translation; reports and discussion. Prerequisite, consent of the instructor.

[407. **VARIATIONS ON A LITERARY THEME.** Fall term. Credit four hours. M W 11. Mr. ADAMS. Not offered in 1963-1964.]

[409. **POST-SYMBOLIST POETRY.** Fall term. Credit four hours. M W F 10. Mr. DE MAN.

Studies in poets of the twentieth century. A reading knowledge of French or German is required. Will be offered in 1964-1965.]

411. **MODERN GERMAN LITERATURE.** Spring term. Credit four hours. M W F 11. Mr. PIKE.

A study of the major works of Kafka, Mann, and Rilke, to be read in English translation.

501-502. **INTRODUCTION TO COMPARATIVE LITERATURE.** Throughout the year. Credit four hours a term. Primarily for graduate students in comparative literature. Hours to be arranged. Mr. ———

A seminar in the practice and theory of literary interpretation, with special emphasis on the comparative study of critical methods. A reading knowledge of at least one language besides English is required.

547. **ESTHETICS AND LITERARY CRITICISM IN THE EIGHTEENTH CENTURY.** Fall term. Credit four hours. Primarily for graduate students. W 4. Mr. DIECKMANN.

PROUST: IN SEARCH OF TIME PAST. (See French 366.)

MATHEMATICS

Mr. PAUL OLUM, *Chairman*; MESSRS. R. P. AGNEW, J. B. AX, I. BIRSTEIN, R. A. BONIC, L. BRICKMAN, W. BROWDER, S. U. CHASE, C. R. CURJEL, R. H. FARRELL, W. FEIT, J. N. FRAMPTON, W. H. J. FUCHS, N. GRI, L. GROSS, H. GUNJI, A. B. HAJIAN, C. S. HERZ, R. G. HEYNEMAN, P. J. HILTON, G. A. HUNT, H. KESTEN, J. C. KIEFER, S. KOCHIEN, G. R. LIVESAY, A. NERODE, S. V. PARTER, G. S. REINHART, W. RINDLER, A. ROSENBERG, G. E. SACKS, F. L. SPITZER, C. J. STONE, S. WAINGER, R. J. WALKER, H. WIDOM, J. WOLFOWITZ.

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 includes all prospective Honors candidates and all students who contemplate an eventual Ph.D. in mathematics.) Prerequisite: 221-222. Requirements: (a) 411-412, (b) 431-432, (c) at least 12 additional hours of mathematics courses numbered 300 or above.

The Department strongly recommends that all prospective Option I majors take Physics 207-208 in their freshman year.

Option II. (This includes those mainly interested in the application of mathematics who do not contemplate an eventual Ph.D. in mathematics.) Prerequisites: (a) 221-222, (b) Physics 207-208. Requirements: (a) 421, 422, (b) 331, 332 or 431-432, (c) an approved 8-hour sequence in statistics, numerical analysis, or advanced differential equations, (d) at least 8 additional hours of courses numbered 300 or above in mathematics or a physical science.

Option III. (For prospective secondary school teachers.) Prerequisites: (a) 214 or 221, (b) 200, (c) Physics 101-102, or 201-202, or 207-208. Mathematics requirements: (a) 331, 332, (b) 451-452, (c) at least 4 additional hours of mathematics courses numbered above 300. (Mathematics 371 is recommended but not required.) Education requirements: Education 130A and 130M. (Students planning to teach in secondary schools should make themselves familiar with the New York State requirements.)

The requirements for Honors in mathematics are: (i) satisfaction of the requirements of Option I at a high level of performance, (ii) satisfactory performance in the Honors Seminar 401, (iii) satisfactory performance on the graduate qualifying examination. (This requires a knowledge of the material of 421, 422.)

Students wishing to take any of the courses numbered 300 or above are invited to confer, before registering, with the instructor concerned.

The Department will grant, on the basis of examination, credit for 111 or 191 to entering freshmen who demonstrate a high level of proficiency in elementary calculus as covered in many high schools. Entering freshmen with a high level of proficiency in all of elementary calculus may be granted credit for 122 or 192 in addition to 111.

In exceptional cases prerequisites to a course may be waived by written consent of the Department.

There are two basic underclass calculus sequences: 111-112-113-214 and 111-122-221-222. Students who plan to do upperclass work in mathematics are advised to take the latter sequence. There are other special purpose sequences such as 191-192-293-294 and 201-202.

Some one-year sequences change level from one term to the next, e.g. 325-426 and 371-472. Subject matter is indicated by the second digit thus: 0 general; 1,2 analysis; 3,4 algebra; 5,6 geometry; 7 statistics; 8 logic; 9 other.

Group 1 in Distribution I may be satisfied with any six hours in mathematics.

GENERAL

101-102. SELECTED TOPICS IN MATHEMATICS. Throughout the year. Credit three hours a term. First term prerequisite to second. M W F 9, T Th S 9. Mr. WAINGER.

Intended for students who do not plan to take many courses in mathematics, but who nevertheless wish to learn some of the principal ideas of the subject. This is not a review course to improve faulty preparation in elementary mathematics. Even though it presupposes only a modest preparation, the course treats a number of topics in genuine mathematics, stressing ideas and theory rather than mere manipulation. It is not a preparation for any other course although sometimes a student with a high grade may be admitted to a calculus course.

200. BASIC CONCEPTS OF MATHEMATICS. Spring term. Credit three hours. Prerequisite, 122 or, with consent of the instructor, 112. T Th S 9.

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. Mr. SACKS.

Students will discuss selected topics under the guidance of one or more members of the staff. This seminar is required for Honors in mathematics.

502. GRADUATE PROSEMINAR. Spring term. Credit four hours. Prerequisite, candidacy for an advanced degree with a major in mathematics. M W F 3. Mr. ———.

Presentation by students of material in mathematical literature. Required of all graduate students majoring in mathematics.

CALCULUS

111. CALCULUS. Either term. Credit three hours. Hours to be arranged.

Plane analytic geometry, differentiation and integration of algebraic functions, applications.

112. CALCULUS. Either term. Credit three hours. Prerequisite, 111. Fall term: M W F 9, 10; T Th S 9, 10. Spring term: lectures M W 10, 11; T Th 10, plus one hour to be arranged.

Differentiation and integration of elementary functions; the technique of integration; plane analytic geometry. Applications.

113. CALCULUS. Either term. Credit three hours. Prerequisite, 112. Fall term: lectures M W 10, 11; T Th 10, plus one hour to be arranged. Spring term: M W F 8, 10.

Solid analytic geometry and vectors, partial differentiation; linear differential equations; infinite series.

214. CALCULUS. Either term. Credit three hours. Prerequisite, 113. T Th S 11.

Multiple integrals, ordinary differential equations, applications to physical problems, numerical methods of integration.

122. CALCULUS. Either term. Credit three hours. Prerequisite, a grade of 80 or better in a lettered section of 111, or 90 or better in a numbered section of 111 plus consent of the instructor. Fall term: M W F 11, T Th S 9. Spring term: M W F 10, 11; T Th S 9, 10.

Covers the content of 112 plus vector algebra.

122H. CALCULUS. Honors section of 122. Spring term. Credit three hours. Open only to students simultaneously registered in 210. Hours to be arranged.

221. CALCULUS. Either term. Credit four hours. Prerequisite, grade of 80 or better in

122. Fall term: M W F 8, 10; T Th 8, 10. Spring term: M W F 11; T Th S 9.

Infinite series, differential equations; vector and matrix algebra.

222. **CALCULUS**. Either term. Credit four hours. Prerequisite, 221. Fall term: M W F 10, plus one hour to be arranged. Spring term: M W F 8, 10; T Th S 10.

Partial derivatives. Differential vector calculus and multiple integrals; applications to physical problems.

221H-222H. **CALCULUS**. Honors section of 221-222. Throughout the year. Credit two hours a term. Prerequisites, 210 and consent of the instructor. Open only to students simultaneously registered in 411H-412H. Hours to be arranged.

191. **CALCULUS FOR ENGINEERS**. Either term. Credit four hours. Hours to be arranged. Plane analytic geometry, differential and integral calculus, applications.

192. **CALCULUS FOR ENGINEERS**. Either term. Credit four hours. Prerequisite, 191. Hours to be arranged.

Transcendental functions, technique of integration and multiple integrals, vector calculus, analytic geometry in space, partial differentiation, applications.

293. **ENGINEERING MATHEMATICS**. Either term. Credit four hours. Prerequisite, 192. Hours to be arranged.

Vectors and matrices, first-order differential equations, infinite series. Coding for electronic digital calculators will be taught and used for problems in the above topics.

294. **ENGINEERING MATHEMATICS**. Either term. Credit three hours. Prerequisite, 193. Hours to be arranged.

Linear differential equations, quadratic forms and eigenvalues, differential vector calculus, applications.

201-202. **MATHEMATICS FOR SOCIAL SCIENTISTS**. Throughout the year. Credit four hours a term. Prerequisite, upperclass standing. First term prerequisite to second. M W F 11. Mr. AGNEW.

A treatment of calculus and other topics of interest to social scientists. This course will not prepare the student to continue in mathematics beyond the 400 level.

APPLIED MATHEMATICS

215-216. **HIGHER CALCULUS**. Throughout the year. Credit three hours a term. Pre-

requisite, 214. First term prerequisite to second. T Th S 10. Mr. ———.

Primarily for students who have not had 222. Partial differentiation, multiple and line integrals, Fourier series, partial differential equations, vector analysis, complex variables, calculus of variations, Laplace transforms. Emphasis is placed on a wide range of formal applications of the calculus rather than on the logical development.

421. **APPLIED MATHEMATICS**. Fall term. Credit four hours. Prerequisite, 222 or, with consent of the Department, 194. M T W F 12. Mr. FARRELL.

Series expansions; Fourier and other orthogonal series. Integral vector calculus, and self-adjoint differential operators. Applications to boundary value problems.

422. **APPLIED MATHEMATICS**. Spring term. Credit four hours. Prerequisite, 421. M T W F 12. Mr. FARRELL.

Elements of the theory of functions of a complex variable, with applications to conformal mapping, asymptotic expansions, special functions, and Laplace and Fourier transforms.

The following two descriptions apply to 1963-1964 only:

423. **APPLIED ANALYSIS**. Fall term. Credit three hours. Prerequisite, 422. M W F 12. Mr. HAJIAN.

Matrix theory, calculus of variations, boundary value problems of partial differential equations.

424. **APPLIED ANALYSIS**. Spring term. Credit three hours. Prerequisite, 423. M W F 12. Mr. HAJIAN.

Second-order linear partial differential equations; uniqueness by energy method and maximum principles, semigroups, the Dirichlet problem, associated difference equations. Linear integral equations.

325. **INTRODUCTORY NUMERICAL ANALYSIS**. Fall term. Credit four hours. Prerequisite, 222 or 294. M W F 9. Mr. WALKER.

The elements of modern numerical computations, including interpolation, numerical differentiation and integration, and the solution of linear and nonlinear ordinary differential equations. The facilities of the Cornell Computing Center are available to the students, and coding for the automatic calculator will be taught.

426. **TOPICS IN NUMERICAL ANALYSIS**. Spring term. Credit four hours. Prerequisite, 325, and consent of the instructor. M W F 9. Mr. WALKER.

Selected topics in numerical analysis including linear equations and matrix inversion, eigenvalue problems, and numerical solution of partial differential equations.

415-416. MATHEMATICAL METHODS IN PHYSICS. Throughout the year. Credit four hours a term. Prerequisites, a good knowledge of the techniques of the calculus, such as given by 215-216 and at least two years of general physics. First term prerequisite to second. T W Th F 12. Mr. FUCHS.

For mature students who wish to acquire a wide background of mathematical techniques in one year. Lectures and problem work designed to give a working knowledge of the principal mathematical methods used in advanced physics. Topics include infinite series, Fourier series and integrals, Laplace transforms, complex variables, calculus of variations, matrices, integral equations, and eigenvalue problems.

427-428. ADVANCED DIFFERENTIAL EQUATIONS. Throughout the year. Credit four hours a term. Prerequisite, 421. M W F 12. Mr. AGNEW.

Existence theorem and basic theory of ordinary differential equations. Selected topics from partial differential equations, including various methods of obtaining approximations to solutions.

[525. **ADVANCED NUMERICAL ANALYSIS.** ——— term. Credit four hours. Prerequisite, 426. Not given in 1963-1964.]

ANALYSIS

210. ELEMENTARY ANALYSIS. Spring term. Credit two hours. Open only to freshmen. Prerequisites, consent of the instructor and credit for 122 or simultaneous registration in 122H. M W F 11.

A rigorous theoretical treatment of some basic topics in elementary calculus.

411-412. INTRODUCTION TO ANALYSIS. Throughout the year. Credit four hours a term. Prerequisite, 222. T Th S 10. Mr. PRICE.

An introduction to the theory of functions of real variables, stressing rigorous logical development of the subject rather than technique of applications. Topics include the real number system, metric spaces, continuity, differentiability, integrals, series, and the elementary functions; functions of several variables, line and surface integrals, implicit function theorem, Green's theorem.

411H-412H. INTRODUCTION TO ANALYSIS. Honors section of 411-412. Throughout

the year. Credit four hours a term. Prerequisites, consent of the instructor and 222 or simultaneous registration in 221H-222H. T Th S 10. Mr. STONE.

413. INTRODUCTION TO COMPLEX VARIABLES. Fall term. Credit four hours. Prerequisite, 411-412. M W F 9. Mr. FUCHS.

A rigorous introduction to complex variable theory intended mainly for graduate students and mathematics majors. Complex numbers. Power series. The elementary functions for complex values of the independent variable. Continuity, differentiability, Cauchy-Riemann equations. Integration, Cauchy theorem, Cauchy formulas, residue theorem. Argument principle. Maximum modulus principle. Schwarz's lemma. Conformal representation. Linear transformations. Mappings by elementary functions. Schwarz-Christoffel mappings.

512. REAL VARIABLES. Spring term. Credit four hours. Prerequisites, 411 and 500. M W F 2. Mr. WINGER.

The modern theory of real functions. Topics will include Lebesgue measure and integration in Euclidean space, differentiation, abstract measure and integration, the Lebesgue spaces, and an introduction to Fourier series.

513. COMPLEX VARIABLE THEORY. Fall term. Credit four hours. Prerequisites, 412, 422 (413 after 1962-1963), or consent of the instructor. M W F 2. Mr. KESTEN.

A rigorous treatment of the basic theory of complex variables; Cauchy's theorem, analytic continuation, conformal mapping, Riemann surfaces. Entire and meromorphic functions, algebraic functions, Dirichlet series.

611-612. SEMINAR IN ANALYSIS. Throughout the year. Credit four hours. Prerequisite, consent of the instructor which must be secured in writing before registration in either term. Hours to be arranged. Mr. ———.

614. INTEGRAL EQUATIONS. Fall term. Credit four hours. Prerequisite, 422 (413 after 1962-1963), some acquaintance with Lebesgue integration and Fourier analysis. M W F 10. Mr. WIDOM.

Abstract and concrete theories of integral equations. Applications to differential equations. Fourier techniques applied to equations of convolution type.

623. SEVERAL COMPLEX VARIABLES. Spring term. Credit four hours. Prerequisite, 411. Hours to be arranged. Mr. HUNT.

[613. **FUNCTIONAL ANALYSIS.** Spring term. Credit four hours. Prerequisites, 432 and 512. Not given in 1963-1964.]

[615. **FOURIER ANALYSIS.** ——— term. Credit four hours. Prerequisite, 511. Not given in 1963-1964.]

[617. **ANALYTIC NUMBER THEORY.** ——— term. Credit four hours. Prerequisite, 511. Not given in 1963-1964.]

[619. **DIFFERENTIAL EQUATIONS.** ——— term. Credit four hours. Prerequisite, 412. Not given in 1963-1964.]

[621. **MEROMORPHIC FUNCTIONS.** ——— term. Credit four hours. Prerequisite, 411. Not given in 1963-1964.]

[622. **RIEMANN SURFACES.** ——— term. Credit four hours. Prerequisites, 511, 530 and 550. Not given in 1963-1964.]

[625. **ERGODIC THEORY.** Fall term. Credit four hours. Prerequisite, 512. Not given in 1963-1964.]

[627. **CALCULUS OF VARIATIONS.** ——— term. Credit four hours. Prerequisites, 500 and 550. Not given in 1963-1964.]

ALGEBRA

331. **LINEAR ALGEBRA.** Fall term. Credit four hours. Prerequisite, 200 or 221, which may be taken concurrently. M W F 10. Mr. NERODE.

Vectors, matrices, and linear transformations. Affine and Euclidean spaces. Transformation of matrices. Eigenvalues. Courses 331 and 431 have similar content. The former will emphasize applications while the latter concentrates on the theoretical development of linear algebra. Course 331 will not serve as a prerequisite for courses numbered 500 or higher.

332. **ALGEBRA AND NUMBER THEORY.** Spring term. Credit four hours. Prerequisite, 200 or 331. M W F 10. Mr. HERZ.

Definitions and examples of groups. Finite abelian groups, congruence classes, characters. The fundamental theorem of arithmetic. Imaginary quadratic fields. 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, 222. First term prerequisite to second. M W F 10. Mr. ———.

First term, linear algebra. Second term, introduction to algebraic systems such as fields, groups, rings and their applications.

531. **ALGEBRA.** Fall term. Credit four hours. Prerequisite, 432. T Th 2-3:30. Mr. ———.

Finite groups, rings and fields, tensor algebra, Galois theory.

631-632. **SEMINAR IN ALGEBRA.** Throughout the year. Credit four hours. Prerequisite, consent of the instructor, which must be secured in writing before registration in either term. Hours to be arranged. Mr. Ax.

635. **THEORY OF RINGS.** Fall term. Credit four hours. Prerequisite, 531. Hours to be arranged. Mr. CHASE.

The objects of study will be rings, modules, and algebras. Topics to be discussed will be selected from the following: theory of the radical and semi-simplicity, rings with minimum condition, commutative and local rings, maximal orders, separable algebras and the Brauer group, projective and injective modules, abelian groups. A modest amount of homological algebra will be developed and applied to module theory.

641. **HOMOLOGICAL ALGEBRA.** Spring term. Credit four hours. Prerequisite, 531. Hours to be arranged. Mr. ———.

Modules, functors, derived functors. Applications to the cohomology theory of rings, groups, and Lie algebras.

[633. **GROUP THEORY.** ——— term. Credit four hours. Prerequisite, 531. Selections from the topics of finite groups, representation theory, infinite groups, infinite abelian groups. Not given in 1963-1964.]

[637. **ALGEBRAIC NUMBER THEORY.** Spring term. Credit four hours. Prerequisite, 530. Not given in 1963-1964.]

[639. **LIE ALGEBRAS.** ——— term. Credit four hours. Prerequisite, 531. Structure and representation of the Lie algebras; classification of Lie algebras. Not given in 1963-1964.]

GEOMETRY AND TOPOLOGY

352. **ELEMENTARY TOPOLOGY.** Spring term. Credit four hours. Prerequisite, 122 or 200. M W F 11. Mrs. KINSOLVING.

Elementary combinatorial topology, Jordan curve theorem, fixed point theorems.

451-452. **CLASSICAL GEOMETRIES.** Throughout the year. Credit four hours a term. Prerequisite, 331 or 431, which may be taken concurrently. First term prerequisite to second. T Th S 11. Mrs. KINSOLVING.

Synthetic and analytic methods in affine, projective, and Euclidean geometry. The emphasis will be placed on the rigorous development of geometric systems from sets of axioms.

500. FOUNDATIONS OF MATHEMATICS. Fall term. Credit four hours. Prerequisite, 412. M W F 3. Mr. —.

Topics in general topology, including set theory, topological spaces, mappings, product spaces, etc. Applications to functional analysis.

551. INTRODUCTION TO ALGEBRAIC TOPOLOGY. Spring term. Credit four hours. Prerequisites, 432 and 500. T Th 2-3:30. Mr. —.

Homology and cohomology theories of complexes, singular theory, fundamental group and introduction to homotopy theory, manifolds, geometric applications.

651-652. SEMINAR IN TOPOLOGY. Throughout the year. Credit four hours. Prerequisite, consent of the instructor, which must be secured in writing before registration in either term. Hours to be arranged. Mr. BERSTEIN.

655-656. HOMOTOPY THEORY. Throughout the year. Credit four hours a term. Prerequisite, 551, first term prerequisite to second. Hours to be arranged. Mr. HILTON.

Homotopy groups, exact sequences, fiber spaces, fiber bundles. Hopf invariant and suspension theorems. Cohomology operations. Spectral sequences, applications to the calculation of homotopy groups. Vector fields.

663. MANIFOLDS. Fall term. Credit four hours. Prerequisite, 551. Hours to be arranged. Mr. LIVESAY.

Topological, triangulable, differentiable, and combinatorial manifolds. Duality theorems, Schoenflies theorem. Special problems on three manifolds.

667. ALGEBRAIC GEOMETRY. Fall term. Credit four hours. Prerequisites, 422, 432. Hours to be arranged. Mr. GUNJI.

Introduction to the general theory of Abelian varieties. The topics included are theta functions, Abelian functions, projective embedding of Abelian varieties, ring of endomorphisms, Riemann surface of an algebraic curve, Abelian integrals, inversion of Abelian integrals.

[454. INTRODUCTION TO DIFFERENTIAL GEOMETRY. Spring term. Credit four hours. Prerequisite, 222. Not given in 1963-1964.]

[653-654. HOMOLOGY THEORY. Throughout the year. Credit four hours a term. Prerequisites, 531 and 551. Not given in 1963-1964.]

[669. LIE GROUPS. — term. Credit four hours. Prerequisites, 512 and 550. Not given in 1963-1964.]

PROBABILITY AND STATISTICS

371. ELEMENTARY MATHEMATICAL STATISTICS. Fall term. Credit four hours. Prerequisite, 113, or 221, or 202. M W F 11. Mr. FARRELL.

Topics in probability which are essential to an understanding of statistics; introduction to the mathematical principles underlying modern statistical inference. Emphasis on the rationale underlying the choice of statistical methods in various situations.

472. STATISTICS. Spring term. Credit four hours. Prerequisites, 113, 371, and consent of the instructor. M W F 11. Mr. FARRELL.

A deeper discussion of the topics of 371 from a more advanced point of view.

571. PROBABILITY. Fall term. Credit four hours. Prerequisite, 411 or, with consent of the instructor, 416 or 421. M W F 12. Mr. WOLFOWITZ.

Fundamentals. Combinatorial problems. Distribution functions in one or several dimensions. Important probability laws. Expectation, moments, and characteristic functions. Stochastic convergence and the law of large numbers. The central limit theorem.

572. STATISTICAL INFERENCE. Spring term. Credit four hours. Prerequisite, 571. M W F 12. Mr. WOLFOWITZ.

Introduction to the theory of point estimation. Consistency, efficiency, and sufficiency; the method of maximum likelihood. The classical tests of hypotheses and their power. The theory of confidence intervals. The basic concepts of statistical decision theory. The fundamentals of sequential analysis.

Intended to furnish a rigorous introduction to mathematical statistics, the course is prerequisite to all advanced courses in statistics.

574. ADVANCED PROBABILITY. Spring term. Credit four hours. Prerequisite, 571. M W F 11. Mr. SPITZER.

575. INFORMATION THEORY. Fall term. Credit four hours. Prerequisite, 411, or, with consent of the instructor, 416 or 421. (Familiarity with at least part of the contents of 571 would be helpful.) T Th 1-2:30. Mr. WOLFOWITZ.

A study of existence theorems for codes for the principal noisy channels. Recent results. Some study of code construction. No prior knowledge of information theory is required for this course, but a modest amount of mathematical maturity is desirable.

671-672. SEMINAR IN STATISTICS. Throughout the year. Credit four hours. Pre-

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requisite, consent of the instructor, which must be secured in writing before registration in either term. M 4-6. Mr. WOLFOWITZ.

675. STATISTICAL ESTIMATION. Fall term. Credit four hours. Prerequisite, 572. Hours to be arranged. Mr. KIEFER.

Randomization, sufficiency, completeness, minimum variance estimators. Derivation of sequential minimax estimators by the methods of differential inequalities, Bayes solutions, and invariance. The Neyman-Pearson theory of testing hypotheses and interval estimation.

676. DECISION FUNCTIONS. Spring term. Credit four hours. Prerequisite, 675. Hours to be arranged. Mr. KIEFER.

Wald's theory of decision functions. Multi-decision problems. Existence theorems, complete class theorems, and other general decision theoretic results. Optimum character of the sequential probability ratio test. Recent developments.

677. STOCHASTIC PROCESSES. Fall term. Credit four hours. Prerequisite 512 or 574. Hours to be arranged. Mr. STONE.

General stochastic processes; Markov processes; selected topics from diffusion processes, processes with independent increments, and stationary processes.

[673. ANALYSIS OF VARIANCE. Fall term. Credit four hours. Prerequisite, 572. Not given in 1963-1964.]

[674. DESIGN OF EXPERIMENTS. Spring

term. Credit four hours. Prerequisite, 673. Not given in 1963-1964.]

MATHEMATICAL LOGIC

381. ELEMENTARY MATHEMATICAL LOGIC. Spring term. Credit three hours. Prerequisite, 122 or 200. Hours to be arranged. Mr. KOCHEN.

Propositional calculus via truth tables and as a formal axiomatic theory. Boolean algebras. Introduction to the predicate calculus.

481-482. LOGIC. Throughout the year. Credit four hours a term. Prerequisite, 412, 432 or consent of instructor. Mr. SACKS.

A study of elementary and advanced topics in mathematical logic. Theorems of Herbrand, Gentzen, Church, and Gödel on provability and undecidability. Theory of recursive functions and recursively enumerable sets.

681-682. SEMINAR IN LOGIC. Throughout the year. Credit four hours. Prerequisite, consent of the instructor, which must be secured in writing before registration in either term. Hours to be arranged. Mr. NERODE.

[683. THEORY OF MODELS. ——— term. Credit four hours. Prerequisite, 582. Not given in 1963-1964.]

[685. METAMATHEMATICS. ——— term. Credit four hours. Prerequisite, 582. Not given in 1963-1964.]

690. SUPERVISED READING AND RESEARCH.

MODERN FOREIGN LANGUAGES AND LITERATURES

Courses in modern foreign languages and literatures are offered by the following divisions of the College:

Department of German Literature, Mr. E. A. Blackall, Chairman

Division of Modern Languages, Mr. J. M. Cowan, Director

Department of Romance Literature, Mr. D. Brenes, Acting Chairman

Department of Russian Literature, Mr. G. Gibian, Chairman

BURMESE

Mr. R. B. JONES, JR., and Staff.

101-102. ELEMENTARY COURSE. Throughout the year. Credit six hours a term. Hours to be arranged.

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.

CHINESE

Mr. N. C. BODMAN, Miss H. C. MILLS, Mr. HAROLD SHADICK, and Staff.

For a major involving Chinese studies, see Department of Asian Studies.

101-102. ELEMENTARY CHINESE. Throughout the year. Credit six hours a term. M W 8 and daily at 12 or T Th 9 and daily at 8. Miss MILLS.

121-122. ELEMENTARY HOKKIEN CHINESE. Throughout the year. Credit three hours a term. Prerequisite, Chinese 102 or equivalent. Hours to be arranged. Mr. BODMAN.

201-202. INTERMEDIATE CHINESE I. Throughout the year. Credit three hours a term. Prerequisite, Chinese 102 or equivalent. M W F 10 and two hours to be arranged. Miss MILLS.

213. INTRODUCTION TO CLASSICAL CHINESE. Fall term. Credit three hours. Prerequisite, Chinese 102. M W F 11. Mr. SHADICK. Systematic analysis of basic patterns in classical Chinese; study of texts; exercises in composition. An introduction to the literary style, primarily for students intending to work in classical literature, history, or art history.

301-302. INTERMEDIATE CHINESE II. Throughout the year. Credit four hours a term. Prerequisite, Chinese 202 or equivalent. M T W Th F 11. Miss MILLS and Mr. SHADICK. Readings and drill in modern expository Chinese, three hours; introduction to classical Chinese, two hours. This latter is intended to prepare students of modern Chinese to understand classical forms and quotations occurring in vernacular texts and to use dictionaries and reference works.

312. INTERMEDIATE CLASSICAL CHINESE. Spring term. Credit three hours. Prerequisite, Chinese 213 or 301. M W F 11. Mr. SHADICK.

Study of texts in a variety of styles, ancient and modern.

313. CHINESE HISTORICAL AND PHILOSOPHICAL TEXTS. Fall term. Credit four hours. Prerequisite, Chinese 302 or 312 or consent of the instructor. T Th 11 and one hour to be arranged. Mr. SHADICK.

Selections from the standard histories, the classical philosophers, and early modern reformers.

402. HISTORY OF THE CHINESE LAN-

GUAGE. Spring term. Credit four hours. Prerequisite, consent of the instructor. M W F 2. Mr. BODMAN.

403. LINGUISTIC STRUCTURE OF CHINESE. Fall term. Credit four hours. Prerequisite, consent of the instructor. M W F 2. Mr. BODMAN.

411-412. ADVANCED READINGS IN MODERN CHINESE. Throughout the year. Credit four hours a term. Prerequisite, Chinese 302. Hours to be arranged.

414. CLASSICAL CHINESE PROSE. Spring term. Credit four hours. Prerequisite, consent of the instructor. Hours to be arranged. Mr. SHADICK.

Essays and tales in the classical style.

[416. CLASSICAL CHINESE POETRY AND DRAMA. Spring term. Credit four hours. Prerequisite, consent of the instructor. Hours to be arranged. Mr. SHADICK. Not offered in 1963-1964.]

571-572. SEMINAR IN CHINESE LITERATURE. Throughout the year. Credit and hours to be arranged. Mr. SHADICK.

SINO-TIBETAN LINGUISTICS. (See Linguistics 575-576.)

CZECH

Mr. R. L. LEED.

[121-122. ELEMENTARY COURSE. Throughout the year in alternate years. Credit three hours a term. Prerequisites, *qualification* in Russian and consent of the instructor. Hours to be arranged. Not offered in 1963-1964.]

DUTCH

Mr. J. M. ECHOLS.

[151-152. ELEMENTARY GRADUATE READING COURSE. Throughout the year. Credit three hours a term. Not offered in 1963-1964.]

ENGLISH AS A SECOND LANGUAGE

The following two courses are offered by the Division of Modern Languages. Foreign students should consult a member of that Division at Morrill Hall 108.

102. ENGLISH AS A SECOND LANGUAGE. Fall term. Credit three hours. Prerequisite, placement by the instructor. Daily at 10.

211-212. **ENGLISH AS A SECOND LANGUAGE.** Throughout the year. Credit three hours a term. Prerequisite, placement by the instructor. M W F 11.

FRENCH

Miss A. M. COLBY, Messrs. P. DE MAN, J.-J. DEMORFST, H. DIECKMANN, E. U. DONATO, E. J. GEARY, D. I. GROSSVOGEL, R. A. HALL, JR., C. S. LEONARD, JR., E. P. MORRIS, MRS. J. PARRISH, Messrs. B. L. RIDEOUT, A. SEZNEC, P. ZUMTHOR, and Staff.

Students who elect to major in French should have completed French 201-202 and French 203-204, and they should consult Mr. Leonard and Mr. Seznec as soon as possible.

For completion of a major, French 382 or its equivalent must be successfully completed, and twenty-eight hours of French literature courses selected from 300 and 400 courses, with papers to be written in French. At least one term of a seminar must be included. One term of the following courses: French 401, 402, 403, may be substituted for four hours of the twenty-eight required in French literature (but not for the required semester of a seminar). One four-hour course offered by the Division of Literature may be accepted toward the twenty-eight required hours in French literature if prior approval has been obtained from the major adviser.

No specific number of related courses will be required. The student will work out a coordinated program with the help of his adviser. It is expected that the one quarter to one third of the student's time spent outside the major field be the equivalent of a minor.

The requirements for Honors are similar to those of the major except that the student must (1) have an average grade of 85 in French courses; (2) write a thesis (essay) in French in his senior year; (3) take a general comprehensive examination at the end of his senior year. He may be released from one course during either term of his senior year to write his thesis. Provisions will be made for students in the Junior Year Abroad programs to prepare for Honors.

101. ELEMENTARY COURSE. Either term. Credit six hours. Fall term: drill, daily at 8, 10, 11, or 12; lecture, M W 10 or T Th 2. Spring term: drill, daily at 8; lecture, T Th 2.

102. ELEMENTARY COURSE. Either term. Credit six hours. Prerequisite, French 101 or its equivalent. Students who have previously studied French should consult page 13 before registering for this course. Drill, daily at 8, 9, 10, 11, or 12. Lectures: fall term, M W 8 or T Th 9 or 2; spring term, W F 11 or M W 3 or T Th 8.

112. ELEMENTARY COURSE. Either term. Credit three hours. Prerequisite course for students entering above the level of placement in French 102. Fall term: drill, M W F 8, 9, or 12 or T Th S 10 or 11; lecture, T 9 or F 10 or F 11. Spring term: drill, M W F 9, 10, or 11 or T Th S 10 or 11; lecture, W 10 or 12 or T 9.

151. ELEMENTARY GRADUATE READING COURSE. Either term. Credit three hours. Open only to graduate students. M W F 4:30 and/or 7.

Designed to help students prepare for the Graduate Reading Examination administered by the Graduate School.

152. ELEMENTARY GRADUATE READING COURSE. Either term. Credit three hours. Open only to graduate students. Prerequisite, French 151 or one year of college French or two years of high school French. M W F 4:30 and/or 7.

Designed to help students prepare for the Graduate Reading Examination administered by the Graduate School.

191. ELEMENTARY COURSE. Either term. No credit. Open to those who have completed French 102 or 112 but failed to qualify. Fall term: drill, M W F 8, 9, or 12 or T Th S 10 or 11; lecture, T 9 or F 10 or F 11. Spring term: drill, M W F 9, 10, or 11 or T Th S 10 or 11; lecture, W 10 or 12 or T 9.

201-202. INTRODUCTION TO FRENCH LITERATURE. Throughout the year. Credit three hours a term. Prerequisite, qualification in French (for definition of qualification, see page 13). May be entered in the second term. M W F 11 or T Th S 11. Miss COLBY, Messrs. DONATO, GROSSVOGEL, MORRIS, MRS. PARRISH, Mr. SEZNEC, and staff.

Serves as an intermediate reading course and as an introduction to literature. Complete works are read representing significant writings from the Middle Ages to the present: poetry and drama in French 201, prose and fiction in French 202. The object is to acquire a reading facility while developing a critical appreciation of a foreign literature. Depending upon a student's level of oral proficiency, he will be placed in a class conducted in part or entirely in French.

203. INTERMEDIATE CONVERSATION. Either term. Credit three hours. Prerequisite, qualification in French (for definition of qualification, see page 13). Fall term: M T W Th S 9, T—S 10, or M—F 2. Spring term: M T W Th S 9 or T—S 12.

Guided conversation, grammar drill, and oral and written composition. Emphasis is placed

upon increasing the student's oral command of French.

204. INTERMEDIATE COMPOSITION. Either term. Credit three hours. Prerequisite, a grade of 70 or better in French 203. Fall term: T—S 12. Spring term: M—F 2.

Continuation of the work of French 203, with special attention to accurate and idiomatic expression in written French. Oral and written drill.

301-302. ELEMENTARY FRENCH FOR UPPERCLASSMEN. Throughout the year. Credit four hours a term. Prerequisite, satisfaction of language requirement for graduation and consent of the instructor. M W F 9. Mr. GEARY.

Designed to impart a sound reading knowledge of the language for students who need it as a tool for research or who plan to go on to graduate school.

303-304. ADVANCED COMPOSITION AND CONVERSATION. Throughout the year. Credit four hours a term. Prerequisite, a grade of 75 or better in French 204. M—F 3.

Study of the stylistic resources of modern French, based on reading and analysis of selected texts. Detailed study of present-day syntax. Discussion, oral and written drill.

315-316. LITERATURE OF THE MIDDLE AGES. Throughout the year. Credit four hours a term. Prerequisite, French 201-202 or consent of the instructor. May be entered in the second term by students with some previous training in Old French. M W F 9. Miss COLBY.

Lectures and classroom discussion in French. 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.

318. POETRY OF THE FIFTEENTH CENTURY. Spring term. Credit four hours. Prerequisite, French 201-202 and consent of the department. T Th S 9. Mr. ZUMTHOR.

The poetry of Charles d'Orleans and of François Villon. Lectures in French, class discussion, and written reports.

[321. INTRODUCTION TO SIXTEENTH-CENTURY POETRY. Not offered in 1963-1964.]

[322. MONTAIGNE. Not offered in 1963-1964.]

323. RABELAIS. Fall term. Credit four hours. Prerequisite, French 201-202 or consent of the instructor. T Th 2:30-4. Mr. MORRIS.

324. POETRY OF THE BAROQUE AGE. Spring term. Credit four hours. Prerequisite, French 201-202 and consent of the instructor. W F 2:30-4. Mr. DONATO.

Studies in the works of six poets: Sponde, LaCeppepe, Malherbe, Regnier, Theophile, and Saint-Amant. Changes in taste and society after the death of Ronsard. New positions on poetry; Baroque, Precieux, and official poems. The founding of the Academie Française and the discrediting of poetic inspiration. Lectures in French, class discussions.

334. MOLIERE. Spring term. Credit four hours. Prerequisite, French 201-202 or consent of the instructor. T Th S 10. Mr. SEZNEC.

341. FRENCH THOUGHT IN THE EIGHTEENTH CENTURY. Fall term. Credit four hours. Prerequisite, French 201-202 or consent of the instructor. M W F 10. Mr. DIECKMANN.

The origins and development of French thought in the eighteenth century. Lectures in French, classroom discussion, written reports.

[342. THE NOVEL IN THE EIGHTEENTH CENTURY. Not offered in 1963-1964.]

344. THEATER OF THE EIGHTEENTH CENTURY. Spring term. Credit four hours. Prerequisite, French 201-202 or consent of the instructor. T Th S 12. Mrs. PARRISH.

Plays by the major figures of the age: Lesage, Marivaux, Voltaire, and Beaumarchais with background reading in the works of Crebillon, Diderot, and Sedaine. Discussions in French.

[351. THE NOVEL OF THE ROMANTIC PERIOD. Not offered in 1963-1964.]

[352. POETRY OF THE ROMANTIC PERIOD. Not offered in 1963-1964.]

353. THE NOVEL FROM 1857 TO 1900. Fall term. Credit four hours. Prerequisite, French 201-202 or consent of the instructor. M W F 12. Mrs. PARRISH.

The dominant literary doctrines of the period—realism and naturalism—and their expression. Extensive reading of the novelists of the period: Flaubert, Huysmans, Zola, etc.

[361. MAJOR DRAMATISTS OF THE TWENTIETH CENTURY. Not offered in 1963-1964.]

[362. MAJOR NOVELISTS OF THE TWENTIETH CENTURY. Not offered in 1963-1964.]

366. PROUST: IN SEARCH OF TIME PAST. Spring term. Credit four hours. No prerequisite except for French majors (for the latter, French 201-202). M W F 10. Mr. GROSSVOGEL.

The multiple vision of Proust as expressed in the fifteen volumes of his central work. Class lectures in English and discussion sections.

381. STUDIES IN FRENCH STYLE AND LITERARY ANALYSIS. Fall term. Credit four hours. Primarily for majors. Prerequisite, consent of the instructor. T Th 2:30-4. Mr. SEZNEC.

382. STYLISTICS. Spring term. Credit four hours. Primarily for majors or graduate students. Prerequisite, French 381 or consent of the instructor. T Th 2:30-4. Mr. SEZNEC.

A study of the stylistic significance of tenses and of sentence structure. Designed for those who are oriented toward a literature major or who are mainly concerned with language as literary expression.

[401-402. HISTORY OF THE FRENCH LANGUAGE.] Throughout the year in alternate years. Credit four hours a term. Prerequisites, *qualification* in French and Linguistics 201 or 301. M W F 2. Mr. LEONARD. Not offered in 1963-1964.]

403. LINGUISTIC STRUCTURE OF FRENCH. Fall term in alternate years. Credit four hours. Prerequisites, *qualification* in French and Linguistics 201 or 301. M W F 2. Mr. LEONARD.

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. (See Linguistics 431-432.)

404. FRENCH FOR TEACHERS. Spring term. Credit four hours. Prerequisite, *qualification* in French. Hours to be arranged. Mr. RIDOUT.

Survey of 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.

416. LA LANGUE POETIQUE MEDIEVALE. Spring term. Credit four hours. Prerequisite, French 315-316 or consent of the instructor. Th 2-4. Mr. ZUMTHOR.

The origins and the nature of the poetical language of the Middle Ages. Readings and discussion of texts from the eleventh and twelfth centuries.

433. NOVEL OF THE SEVENTEENTH CENTURY. Fall term. Credit four hours. Pre-

requisite, two terms of 300-level French literature courses or consent of the instructor. F 2-4. Mr. SEZNEC.

Principal novels of the seventeenth century from *l'Astrée* to *la Princesse de Clèves*, including some semi-fictional *mémoires*.

[436. LA FONTAINE. Not offered in 1963-1964.]

[452. STENDHAL. Not offered in 1963-1964.]

[459. MALLARME. Not offered in 1963-1964.]

464. REPRESENTATIVE POETS OF THE TWENTIETH CENTURY. Spring term. Credit four hours. Prerequisite, two terms of 300-level French literature courses or consent of the instructor. T 2-4. Mr. GROSSVOGEL.

Intensive reading and detailed explication of such poets as Valéry, Claudel, Breton, Aragon, Eluard, Char, Cocteau, Jouve, Emmanuel, Saint-John Perse, Bonnefoy. Classroom discussions, oral and written reports.

497-498. HONORS COURSE IN FRENCH. Throughout the year. Credit four hours a term. May be entered in the second semester. Prerequisite, consent of the instructor. Hours to be arranged. Staff.

GRADUATE COURSES

[514. CHRETIEN DE TROYES. Not offered in 1963-1964.]

521. DU BELLAY. Fall term. Credit four hours. Th 4. Mr. MORRIS.

[532. DESCARTES. Not offered in 1963-1964.]

547. ESTHETICS AND LITERARY CRITICISM IN THE EIGHTEENTH CENTURY. Seminar in comparative literature. Fall term. Credit four hours. W 4. Mr. DIECKMANN.

[548. DIDEROT'S ESTHETICS. Not offered in 1963-1964.]

552. ALFRED DE VIGNY. Spring term. Credit four hours. M 2. Mrs. PARRISH.

[561. BERNANOS. Not offered in 1963-1964.]

563. GIDE. Fall term. Credit four hours. T 4. Mr. GROSSVOGEL.

[565. SARTRE AND CAMUS AS NOVELISTS. Not offered in 1963-1964.]

600. SEMINAR IN FRENCH LINGUISTICS. Offered in accordance with student needs. Credit three hours a term. Hours to be arranged. Messrs. HALL and LEONARD.

GERMAN

MESSRS. V. T. BJARNER, E. A. BLACKALL, A. BONAWITZ, R. R. CATURA, J. M. COWAN, J. DALLETT, P. DE MAN, M. JOLLES, B. D. KANEEN, H. L. KUFNER, MRS. H. S. KUFNER, MESSRS. B. E. PIKE, and H. R. PLANT and Staff.

For those not majoring in German, the prerequisite for admission to courses numbered 330 to 360 is German 202 or consent of the instructor. To obtain instructor's consent, students who have not completed German 202 will be required to show that they know sufficient German to follow with profit the course for which they wish to register.

For admission to a major in German, the prerequisites are both German 202 and 204. Students may apply for admission to the major while they are enrolled in these courses, but acceptance will be conditional on their completing these courses with a grade of 70 or above.

For the major in German, the following courses are to be completed: German 303, 304, 331, and at least five other 300- or 400-level courses in German. The natural progression to the major is through 201-202 and 203-204.

The Honors program in German consists of an integrated plan designed for the individual student and culminating in an Honors essay. For admission to the Honors program a student must have a minimum average of 85 in German courses, and the consent of Mr. Blackall.

The first set of distribution requirements can be fulfilled by German 201-202 if not used to meet the language requirement.

The second set of distribution requirements can be fulfilled by German 201-202 together with a 300- or 400-level sequence of two courses, or by German 203-204, 303-304. This would constitute a useful minor in German for those majoring in another field and for those proceeding to Graduate School. The attention of students majoring in German is called to the courses offered by the Division of Literature, many of which complement the course offerings in German. German majors may, if they wish, use Division of Literature courses to fulfill their second distribution requirement.

101. ELEMENTARY COURSE. Either term. Credit six hours. Students who have previously studied German should consult page 13 before registering for this course. Fall term: drill, daily at 8, 9, 10, 11, or 12; lecture, M W 11 or T Th 11 or 12. Spring term: drill, daily at 8, 10, or 11; lecture, T Th 12.

102. ELEMENTARY COURSE. Either term. Credit six hours. Students who have previously

studied German should consult page 13 before registering for this course. Fall term: drill, daily at 8 or 10; lecture, T Th 12. Spring term: drill, daily at 8, 9, 10, 11, or 12; lecture, M W 9 or T Th 9 or 11.

112. ELEMENTARY COURSE. Either term. Credit three hours. Prequalification course for students entering above the level of placement in German 102. Fall term: drill, T Th S 9, 11, or 12; lecture, T 8. Spring term: drill, T Th S 9 or 12; lecture, Th 8.

151. ELEMENTARY GRADUATE READING COURSE. Either term. Credit three hours. M W F 4:30 and/or 7.

Designed to help students prepare for the Graduate Reading Examination administered by the Graduate School.

152. ELEMENTARY GRADUATE READING COURSE. Either term. Credit three hours. Prerequisite, German 151 or one year of college German or two years of high school German. M W F 4:30 and/or 7.

Designed to help students prepare for the Graduate Reading Examination administered by the Graduate School.

191. ELEMENTARY COURSE. Either term. No credit. Open to those who have completed German 102 or 112 but failed qualification. Fall term: drill, T Th S 9, 11 or 12; lecture, T 8. Spring term: drill, T Th S 9 or 12; lecture, Th 8.

201. MASTERPIECES OF GERMAN LITERATURE. Either term. Credit three hours. Prerequisite, qualification in German (for definition of qualification, see page 13). Fall term: M W F 11 or T Th S 9 or 11. Spring term: M W F 10 or T Th S 10. Messrs. PIKE, DALLETT, BONAWITZ, and Staff.

The aim is to introduce the students to German literature by the reading of notable texts ranging chronologically from Lessing and Goethe to the middle of the nineteenth century.

202. MASTERPIECES OF GERMAN LITERATURE. Either term. Credit three hours. Prerequisite, German 201. Fall term: M W F 10. Spring term: M W F 11 or T Th S 10 or 11. Messrs. PIKE, DALLETT, BONAWITZ, and Staff. Continuation of the sequence in 201 up to Rilke and Brecht.

203. INTERMEDIATE COMPOSITION AND CONVERSATION. Either term. Credit three hours. Prerequisite, qualification in German (for definition of qualification, see page 13). Fall term: M W F 9, 11, or 12 or T Th S 9, 10, or 11. Spring term: M W F 9 or T Th S 9 or 10.

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 9 or T Th S 10. Spring term: M W F 9 or 12 or T Th S 9 or 11.

Continuation of the work of German 203. Emphasis is placed on increasing the student's active vocabulary and command of grammatical patterns.

301-302. ELEMENTARY GERMAN FOR UPPERCLASSMEN. Throughout the year. Credit four hours a term. Prerequisite, satisfaction of language requirement for graduation and consent of the instructor. M W F 10. Mr. COWAN.

Designed to impart a sound reading knowledge of the language for students who need it as a tool for research or who plan to go on to graduate school.

303. ADVANCED COMPOSITION AND CONVERSATION. Fall term. Credit four hours. Prerequisite, German 204 or consent of the instructor. M W F 10.

Emphasis is placed upon increasing the student's oral and written command of German. Detailed study of present-day syntax.

304. ADVANCED COMPOSITION AND CONVERSATION. Spring term. Credit four hours. Prerequisite, German 303 or consent of the instructor. M W F 10.

Further study of German syntax with emphasis on different levels of style. Selected texts will serve as the basis for practice in written and oral expression.

331. OUTLINES OF GERMAN LITERATURE UP TO 1700. Fall term. Credit four hours. Prerequisite, German 202 or consent of the instructor. T Th S 10. Mr. BONAWITZ.

The development of German literature from the earliest monuments illustrated by the reading of selected texts.

353. LESSING AND THE ENLIGHTENMENT. Fall term. Credit four hours. Prerequisite, German 202 or consent of the instructor. M W F 9. Mr. JOLLES.

The Age of Enlightenment in Germany: its literary, political, and philosophical character. The course will culminate in an intensive study of the greatest literary representative of that age.

354. SCHILLER AND GERMAN CLASSICISM. Spring term. Credit four hours. Pre-

requisite, German 202 or consent of the instructor. M W F 9. Mr. JOLLES.

Schiller's development as a dramatist, poet, and thinker. The emergence of German classicism and Schiller's part in its formation.

355. THE YOUNG GOETHE. Fall term. Credit four hours. Prerequisite, German 202 or consent of the instructor. M W F 12. Mr. BLACKALL.

A study of Goethe's development as a writer from the *Sturm und Drang* up to the Italian journey, with special reference to his poetry written before 1786, his *Götz von Berlichingen*, *Werther*, *Iphigenie*, *Torquato Tasso*, and *Egmont*.

356. THE LATER GOETHE. Spring term. Credit four hours. Prerequisite, German 202 or consent of the instructor. It is recommended that students taking this course should try to take 355 first. M W F 12. Mr. BLACKALL.

A study of Goethe's development after the Italian journey. A full study of *Faust* (Parts One and Two) and some of the later poetry will be included.

[**357. ROMANTICISM.** Fall term. Credit four hours. Prerequisite, German 202 or consent of the instructor. M W F 9. Mr. JOLLES. Not offered in 1963-1964.

German literature in the first half of the nineteenth century, with special reference to the Romantic movement itself and its effect on the period 1830-1850.]

[**358. REALISM AND NATURALISM.** Spring term. Credit four hours. Prerequisite, German 202 or consent of the instructor. M W F 9. Mr. PIKE. Not offered in 1963-1964.

German literature in the second half of the nineteenth century.]

359. PROSE FICTION FROM THOMAS MANN TO HEINRICH BÖLL. Fall term. Credit four hours. Prerequisite, German 202 or consent of the instructor. T Th S 9. Mr. PIKE.

A study of the development of the novel and short story in the twentieth century, with detailed study of the more important works.

360. POETRY AND DRAMA FROM RILKE TO BRECHT. Spring term. Credit four hours. Prerequisite, German 202 or consent of the instructor. T Th S 9. Mr. PIKE.

A study of the development of lyrical poetry and the drama in the twentieth century, with detailed study of some of the more important works.

401. HISTORY OF THE GERMAN LANGUAGE. Fall term in alternate years. Credit

four hours. Prerequisites, German 204 or consent of the instructor and Linguistics 201 or 301 taken previously or concurrently. M W F 11. Mr. KUFNER.

The relation of German to English and other Indo-European languages.

402. HISTORY OF THE GERMAN LANGUAGE. Spring term in alternate years. Credit four hours. Prerequisite, German 401 or consent of the instructor. M W F 11. Mr. KUFNER. The development of the German language, i.e. its phonology, morphology, syntax, and lexicon up to about the year 1500.

403. LINGUISTIC STRUCTURE OF GERMAN. Fall term. Credit four hours. Prerequisites, German 204 or consent of the instructor and Linguistics 201 or 301 taken previously or concurrently. M W F 12. Mr. CATURA.

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. Prerequisite, German 403. M W F 12. Mr. KUFNER.

Methods of teaching the language based on a contrastive study of the structures of English and German. Extensive outside reading, reports on textbooks, discussion of various teaching aids and realia. Required for provisional New York State teacher certification.

405. INTRODUCTION TO MIDDLE HIGH GERMAN. Fall term. Credit four hours. Prerequisite, consent of the instructor. T Th S 12. Mr. BONAWITZ.

Intended for students with no previous knowledge of Middle High German; will begin with study of the Middle High German language and then proceed to the reading of selected texts.

406. MIDDLE HIGH GERMAN LITERATURE. Spring term. Credit four hours. Prerequisite, German 405. T Th S 12. Mr. BONAWITZ.

The main authors and literary trends of the Middle High German period will be discussed in connection with the reading of extensive selections from the works of the great epic and lyric poets between 1190 and 1230.

451. HONORS READING COURSE. Fall term. Credit four hours. For Honors students only. The Staff.

Extensive reading of texts supplementary to regular course work, under the direction of a member of the department, who will discuss the student's work with him two or three times a term.

452. HONORS READING COURSE. Spring term. Credit four hours. For Honors students only. The Staff.

A continuation of the work done in 451.

COURSES FOR GRADUATE STUDENTS

These courses are intended solely for graduate students; undergraduates will not be admitted. Corresponding courses at undergraduate level will be found listed under courses at the 300 and 400 level.

500. SPRECH- UND SCHREIBBÜCHER. Either term. No credit. M W F 10. Mr. JOLLES and Staff.

Required of all graduate students in German studies.

[**501. GOTHIC.** Fall term in alternate years. Credit four hours. W 2-4. Mr. KUFNER. Not offered in 1963-1964.]

503. OLD SAXON. Fall term in alternate years. Credit four hours. W 2-4. Mr. KUFNER.

504. OLD HIGH GERMAN. Spring term in alternate years. Credit four hours. W 2-4. Mr. CATURA.

[**507-508. HISTORY OF THE GERMAN LANGUAGE SINCE 1500.** Throughout the year. Credit four hours a term. T 2-4. Mr. BLACKALL. Not offered in 1963-1964.]

509-510. OLD ICELANDIC. Throughout the year in alternate years. Credit four hours a term. Hours to be arranged. Mr. BJARNER.

[**COMPARATIVE GERMANIC LINGUISTICS.** (See Linguistics 542.)]

[**521. THE MIDDLE HIGH GERMAN EPIC.** Fall term in alternate years. Credit four hours. Prerequisite, German 406 or consent of the instructor. M 2-4. Mr. BONAWITZ. Not offered in 1963-1964.]

522. THE MIDDLE HIGH GERMAN LYRIC. Fall term. Credit four hours. Prerequisite, German 406 or consent of the instructor. M 2-4. Mr. BONAWITZ.

[**523. GERMAN LITERATURE OF THE LATE MIDDLE AGES.** Fall term. Credit four hours. Not offered in 1963-1964.]

[**526. GERMAN LITERATURE OF THE SIXTEENTH CENTURY.** Credit four hours. Mr. DALLETT. Not offered in 1963-1964.]

[**527-528. GERMAN LITERATURE IN THE SEVENTEENTH CENTURY.** Throughout the year. Credit four hours a term. Not offered in 1963-1964.]

[529-530. **SCHILLER**. Throughout the year. Credit four hours a term. T 2-4. Mr. JOLLES. Not offered in 1963-1964.]

531. **GOETHE'S NOVELS**. Fall term. Credit four hours. F 2-4. Mr. BLACKALL.

532. **GOETHE'S FAUST**. Spring term. Credit four hours. T 2-4. Mr. JOLLES.

534. **THE ROMANTIC NOVEL**. Spring term. Credit four hours. F 2-4. Mr. BLACKALL.

[535-536. **GERMAN LITERATURE 1832-1890**. Throughout the year. Credit four hours a term. F 2-4. Mr. BLACKALL. Not offered in 1963-1964.]

[537. **POETRY AND DRAMA OF THE TWENTIETH CENTURY**. Fall term. Credit four hours. Th 2-4. Mr. PIKE. Not offered in 1963-1964.]

538. **THE NOVELS OF THOMAS MANN**. Spring term. Credit four hours. Th 2-4. Mr. PIKE.

539. **HISTORY AND METHODS OF MODERN GERMAN LITERARY CRITICISM**. Fall term. Credit four hours. T 2-4. Mr. JOLLES.

[541-542. **THE PHILOSOPHIC BACKGROUND TO GERMAN LITERATURE: FROM LEIBNITZ TO HEIDEGGER**. Throughout the year. Credit four hours a term. T 2-4. Mr. JOLLES. Not offered in 1963-1964.]

GERMAN HISTORY. See offerings in History.

SEMINARS FOR GRADUATE STUDENTS

These seminars are intended for graduate students who are beyond the first year of their graduate study. Each seminar will deal with a specific topic in more detail than is possible in the graduate courses. The topics of the seminars will vary from year to year. The topics for 1963-1964 will be:

600. **SEMINAR IN GERMANIC LINGUISTICS**. Offered in accordance with student needs. Credit four hours. Topic and hours to be arranged.

653. **RICHARD WAGNER**. Fall term. Credit four hours. W 2-4. Mr. GROUT and Mr. BLACKALL. Prerequisites, reading knowledge of German and some knowledge of musical notation.

654. **WOLFRAM VON ESCHENBACH**. Spring term. Credit four hours. M 2-4. Mr. BONAWITZ.

HINDI

MESST. G. H. FAIRBANKS, J. W. GAIR, G. B. KELLEY, B. G. MISRA, and Staff.

101-102. **ELEMENTARY COURSE**. Throughout the year. Credit six hours a term. Drill daily at 9; lecture, T Th 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.

600. **SEMINAR IN HINDI LINGUISTICS**. Either term. Credit three hours. Prerequisite, consent of the instructor. Hours to be arranged. Mr. FAIRBANKS.

INDONESIAN

Mr. J. M. ECHOLS and Staff.

101-102. **ELEMENTARY 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. Mr. ECHOLS.

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. Mr. ECHOLS.

301. READINGS IN INDONESIAN AND MALAY. Either term. Credit four hours. Prerequisite, Indonesian 201-202 or the equivalent. Hours to be arranged. Mr. ECHOLS.

302. READINGS IN INDONESIAN AND MALAY. Either term. Credit four hours. Prerequisite, Indonesian 301. Hours to be arranged. Mr. ECHOLS.

303. ADVANCED INDONESIAN CONVERSATION AND COMPOSITION. Either term. Credit four hours. Prerequisite, Indonesian 204. Hours to be arranged. Mr. ECHOLS and Staff.

305. ADVANCED READINGS IN INDONESIAN AND MALAY LITERATURE. Either term. Credit four hours. Prerequisite, Indonesian 302 or consent of the instructor. Mr. ECHOLS and Staff.

[**403. LINGUISTIC STRUCTURE OF INDONESIAN.** Fall term in alternate years. Credit four hours. Prerequisites, Indonesian 101-102 or the equivalent and Linguistics 201. Hours to be arranged. Mr. ECHOLS. Not offered in 1963-1964.]

[**MALAYO-POLYNESIAN LINGUISTICS.** (See Linguistics 573.) Not offered in 1963-1964.]

[**SOUTHEAST ASIAN LITERATURE IN TRANSLATION.** (See Literature 318.) Not offered in 1963-1964.]

ITALIAN

Messrs. E. U. DONATO, R. M. DURLING, J. FRECCERO, R. A. HALL, JR., and Staff.

For a major in Italian, consult Mr. Durling and Mr. Hall.

101-102. ELEMENTARY COURSE. Throughout the year. Credit six hours a term. Drill, daily at 8 or 12; lecture, T Th 10.

121-122. ELEMENTARY COURSE. Throughout the year. Credit three hours a term. Prerequisite, *qualification* in a Romance language or Latin. M W F 2.

191. ELEMENTARY COURSE. Either term. No credit. Open to those who have completed 102 but failed to qualify. T Th 2-3:30.

Intensive grammar review and reading.

203. COMPOSITION AND CONVERSATION. Fall term as required. Credit three hours. Prerequisite, *qualification* in Italian. T Th 2-3:30.

Guided conversation, grammar drill, and oral and written composition. Emphasis is placed on increasing the student's oral and written command of Italian.

204. COMPOSITION AND CONVERSATION. Spring term as required. Credit three hours. Prerequisite, Italian 203. T Th 2-3:30.

Continuation of the work of Italian 203, with special attention to accurate and idiomatic expression in Italian. Oral and written drill.

304. ADVANCED COMPOSITION AND CONVERSATION. Given as required. Credit two to four hours. Prerequisite, Italian 204. Hours to be arranged.

313-314. DANTE. Throughout the year. Credit four hours a term. Prerequisites, reading knowledge of Italian and consent of the instructor. M W F 2. Mr. FRECCERO.

Intensive study of the *Divine Comedy*.

321-322. STUDIES IN THE ITALIAN RENAISSANCE. Throughout the year. Credit four hours a term. Prerequisite, Italian 313-314 or consent of the instructor. M W F 9. Mr. DURLING.

Fall term, Petrarch and Boccaccio. Spring term, the Renaissance to Ariosto.

361-362. THE MODERN PERIOD. Throughout the year. Credit four hours a term. Prerequisite, Italian 313-314 or consent of the instructor. M W F 10. Mr. FRECCERO.

Fall term: the nineteenth century. Spring term: the twentieth century.

[**421. ITALIAN COMEDY.** Not offered in 1963-1964.]

436. TASSO AND THE LATER RENAISSANCE. Spring term. Credit four hours. Prerequisite, Italian 321 or consent of the instructor. M W F 9. Mr. DONATO.

Neo-classicism and Baroque: the main stream.

[**442. ARCADIA AND ENLIGHTENMENT.** Not offered in 1963-1964.]

[**451. ROMANTICISM IN ITALY.** Not offered in 1963-1964.]

THE COMPARATIVE STUDY OF THE ROMANCE LANGUAGES. (See Linguistics 431-432.)

513-514. SPECIAL TOPICS IN THE DIVINE COMEDY. Throughout the year. Credit four hours a term. Prerequisite, consent of the instructor. Hours to be arranged. Mr. FRECCERO.

600. SEMINAR IN ITALIAN LINGUISTICS. Offered in accordance with student needs. Credit three hours. Hours to be arranged. Mr. HALL.

JAPANESE

Mr. R. B. JONES, JR., and Staff.

101-102. ELEMENTARY COURSE. Throughout the year. Credit six hours a term. M-F 9, M W F 10.

201-202. JAPANESE READING. Throughout the year. Credit three hours a term. Prerequisite for 201, *qualification* in Japanese; for 202, Japanese 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 Japanese; for 204, Japanese 203 or consent of the instructor. Hours to be arranged. Mr. JONES.

301-302. SELECTED READINGS IN JAPANESE. Throughout the year. Credit four hours a term. Prerequisite, Japanese 201-202 or consent of the instructor. Hours to be arranged. Mr. JONES.

Emphasis is on Koogo style but Bunō style is introduced in the second term.

305-306. INTRODUCTION TO CLASSICAL JAPANESE. Throughout the year. Credit four hours a term. Prerequisite, Japanese 301-302 or consent of the instructor. Hours to be arranged. Mr. JONES.

Emphasis is on Bunō and Kanbun styles of literature.

JAVANESE

Mr. J. M. ECHOLS and Staff.

121-122. ELEMENTARY COURSE. Throughout the year. Credit three hours a term. Prerequisite, Indonesian 102. Hours to be arranged. Mr. ECHOLS and Staff.

LINGUISTICS

MESSRS. F. B. AGARD, N. C. BODMAN, J. M. COWAN, J. M. ECHOLS, G. H. FAIRBANKS, J. W. GAIR, R. L. HADLICH, R. A. HALL, JR., C. F. HOCKETT, R. B. JONES, G. B. KELLEY, H. L. KUFNER, R. L. LEED, C. S. LEONARD, JR., B. G. MISRA, P. M. ROBERTS, M. SAMILOV, D. F. SOLA, and Staff.

COURSES FOR UNDERCLASSMEN

201-202. INTRODUCTION TO THE SCIENTIFIC STUDY OF LANGUAGE. Throughout the year. Credit three hours a term. M W F 9. Mr. COWAN and Staff.

An introductory survey course designed to acquaint the student with the nature of human language and with its systematic study.

203-204. THE STRUCTURE OF ENGLISH. Throughout the year. Credit three hours a term. Hours to be arranged. Mr. ROBERTS and Staff.

Modern structural analysis of English in the first term. In the second term, comparative analysis using the various contrastive sketches of English and other languages recently published. Emphasis will be on the teaching of English as a second language.

COURSES PRIMARILY FOR UPPERCLASSMEN

301. GENERAL LINGUISTICS. Fall term. Credit four hours. M W F 9. Not open to students who have taken Linguistics 201-202. Mr. HOCKETT.

A technical survey of the field of linguistics as a branch of anthropology. This course is one of four introductory courses in the major branches of anthropology; the other three are Anthropology 301, Zoology 370, and Anthropology 303.

403-404. ANALYTIC TECHNIQUES. Throughout the year. Credit four hours a term. Prerequisite, Linguistics 201-202 or 301. M W F 10, and an afternoon laboratory hour to be arranged. Mr. HOCKETT and Staff.

A practical training course in the techniques of observation and analysis of descriptive linguistics.

431-432. THE COMPARATIVE STUDY OF THE ROMANCE LANGUAGES. Throughout the year in alternate years. Credit four hours a term. Prerequisites, Linguistics 201-202 or Linguistics 301 taken previously or concurrently and consent of the instructor. T Th 2-3:30. Mr. HALL.

The family of Romance languages; the application of the comparative method and the reconstruction of Proto-Romance speech. The relation between Proto-Romance and Old and Classical Latin. The history of the Romance languages as a whole from the present back to Latin times and their interrelationships. A survey of the accomplishments and approaches of recent work in Romance linguistics. Lectures, discussion, and exercises.

ETHNOLINGUISTICS AND PSYCHOLINGUISTICS. (See Anthropology 461.)

GREEK DIALECTS. (See Greek 390.)

HISTORY OF THE LATIN LANGUAGE. (See Latin 347.)

COMPARATIVE GRAMMAR OF GREEK AND LATIN. (See Latin 350.)

ITALIC DIALECTS. (See Latin 390.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

[502. **COMPARATIVE METHODOLOGY.** Spring term in alternate years. Credit four hours. Prerequisite, Linguistics 201-202 or 301. Hours to be arranged. Mr. FAIRBANKS. Not offered in 1963-1964.]

508. **LINGUISTIC TYPOLOGY.** Spring term. Credit two or four hours. Prerequisite, Linguistics 404. Hours to be arranged. Mr. HOCKETT.

511-512. **ACOUSTICAL PHONETICS.** Throughout the year. Credit four hours a term. Prerequisite, consent of the instructor. Hours to be arranged. Mr. COWAN.

A rapid survey of the techniques of experimental articulatory phonetics; the speech mechanism as a sound generator; sound recording techniques, and the methods of general acoustics; application of acoustical analysis to the study of speech sounds. Requires no mathematical training beyond arithmetical computation; the necessary mathematical operations for acoustical analysis will be developed for the students by the instructor.

[521-522. **COMPARATIVE INDO-EUROPEAN LINGUISTICS.** Throughout the year in alternate years. Credit four hours a term. Prerequisite, consent of the instructor. Hours to be arranged. Mr. FAIRBANKS. Not offered in 1963-1964.]

523-524. **ELEMENTARY SANSKRIT.** Throughout the year in alternate years. Credit three hours a term. Mr. MISRA.

525. **ELEMENTARY PALI.** Either term as needed. Credit three hours. Hours to be arranged. Mr. FAIRBANKS.

[542. **COMPARATIVE GERMANIC LINGUISTICS.** Spring term in alternate years. Credit four hours. Prerequisite, consent of the instructor. W 2-4. Mr. KUFNER. Not offered in 1963-1964.]

[551-552. **COMPARATIVE SLAVIC LINGUISTICS.** Throughout the year in alternate years. Credit four hours a term. Prerequisite, consent of the instructor. Hours to be arranged. Mr. LEED. Not offered in 1963-1964.]

571-572. **SEMINAR IN SOUTHEAST ASIAN LINGUISTICS.** Throughout the year. Credit four hours a term. Prerequisites, Linguistics

201-202 or 301 and consent of the instructor. Hours to be arranged. Mr. JONES.

Descriptive and comparative studies of mainland Southeast Asian languages are dealt with in alternate terms. Topics may be selected in accordance with the interests of the students.

[573. **MALAYO-POLYNESIAN LINGUISTICS.** Fall term in alternate years. Credit four hours. Prerequisites, Linguistics 201-202 or 301 and consent of the instructor. Hours to be arranged. Mr. ECHOLS. Not offered in 1963-1964.]

575-576. **SINO-TIBETAN LINGUISTICS.** Throughout the year. Credit four hours a term. Prerequisite, Linguistics 201-202 or 301 or Chinese 402-403 and consent of the instructor. Hours to be arranged. Mr. BODMAN.

Descriptive and comparative studies of Chinese dialects and Tibeto-Burman languages.

600. **SEMINAR.** Each term. Admission by permission of the instructor. Hours and credits to be arranged. Various members of the Staff.

Subject to the needs of students and to the limitations of staff time, advanced seminars are set up in a wide variety of topics, which, in the past, have included such as the following: contemporary grammatical theory, applied linguistics in language teaching, applied linguistics in literacy training and orthography formation, English grammar, problems and methods of Romance linguistics, Romance linguistic geography, Old Provençal texts, Old Italian texts, problems of Romance genealogy, Romance-based Creoles, German dialects.

PORTUGUESE

Mr. F. B. AGARD.

121-122. **ELEMENTARY COURSE.** Throughout the year. Credit three hours a term. Prerequisites, *qualification* in Spanish and consent of the instructor. T Th 2-3:15.

A basic course designed principally for students majoring in Spanish or interested especially in Portugal or Brazil. Phonology, grammar, listening comprehension, and reading.

QUECHUA

Mr. D. F. SOLÁ.

121-122. **ELEMENTARY COURSE.** Throughout the year. Credit three hours a term. Prerequisite, *qualification* in Spanish or consent of the instructor. Hours to be arranged.

A basic course in the Cuzco dialect of Quechua, emphasizing auditory comprehension and verbal control.

RUSSIAN

MISS P. CARDEN, MESST. G. H. FAIRBANKS, G. GIBIAN, MRS. A. L. JARYC, MESST. R. L. LEED, M. SAMILOV, MRS. O. SAMILOV, and Staff.

It is desirable, although not necessary, for a prospective major to complete Russian 101-102, 201-202, and 203-204 as an underclassman, since these courses are prerequisite to most of the upperclass 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 and Mr. Leed.

For a major in Russian a student will be required to complete: (1) Russian 303-304; (2) twenty-four hours from the following, of which twelve hours must be in literature in the original: Russian 311, 312, 331, 332, 401, 402, 403, 404, 431, 432.

Prospective teachers of Russian in secondary schools should take Linguistics 201 as underclassmen.

The following sequences will satisfy the Distribution II requirement for students not majoring in Russian: Russian 201-202, 331-332; Russian 203-204, 303-304.

Part of the Distribution I requirement may be met by taking Linguistics 201-202.

101. ELEMENTARY COURSE. Either term. Credit six hours. Fall term: drill, daily at 8, 9, 10, 11, or 12; lecture, M W 2 or T Th 10 or 11. Spring term: drill, daily at 8 or 11; lecture, M W 10.

102. ELEMENTARY COURSE. Either term. Credit six hours. Prerequisite, Russian 101 or its equivalent. Fall term: drill, daily at 8 or 11; lecture, M W 10. Spring term: drill, daily at 8, 9, 10, 11, or 12; lecture, M W 2 or T Th 10 or 11.

112. ELEMENTARY COURSE. Either term. Credit three hours. Prequalification course for students entering above the level of placement in Russian 102. Hours to be arranged.

151-152. ELEMENTARY GRADUATE READING COURSE. Throughout the year. Credit three hours a term. Hours to be arranged.

Designed to help students prepare for the graduate reading examination administered by the Graduate School.

191. ELEMENTARY COURSE. Either term. No credit. Open to those who have completed Russian 102 or 112 but failed to qualify. Hours to be arranged.

201. RUSSIAN READING. Either term. Credit three hours. Prerequisite, *qualification in*

Russian (for definition of *qualification* see page 13). Fall term, M W F 10 or T Th S 10. Spring term, M W F 9.

202. RUSSIAN READING. Either term. Credit three hours. Prerequisite, Russian 201. Fall term: M W F 9. Spring term: M W F 10 or T Th S 10.

203. COMPOSITION AND CONVERSATION. Fall term. Credit three hours. Prerequisite, *qualification in Russian* (for definition of *qualification* see page 13). M W F 11, 12, or 2 plus an additional hour at M 3 or T 3. Mrs. JARYC, Mrs. SAMILOV, and Mr. SAMILOV.

204. COMPOSITION AND CONVERSATION. Spring term. Credit three hours. Prerequisite, Russian 203. M W F 11, 12, or 2 plus an additional hour at M 3 or T 3. Mrs. JARYC, Mrs. SAMILOV, and Mr. SAMILOV.

221-222. MASTERPIECES OF RUSSIAN LITERATURE. In translation. Throughout the year. Credit three hours a term. M W F 12. Miss CARDEN.

301-302. ELEMENTARY RUSSIAN FOR UNDERCLASSMEN. Throughout the year. Credit four hours a term. Prerequisite, satisfaction of language requirement for graduation and consent of the instructor. M W F 9. Mr. LEED.

Designed to impart a sound reading knowledge of the language for students anticipating graduate study.

303. ADVANCED COMPOSITION AND CONVERSATION. Fall term. Credit four hours. Prerequisite, Russian 204. M W F 11. Mrs. JARYC.

304. ADVANCED COMPOSITION AND CONVERSATION. Spring term. Credit four hours. Prerequisite, Russian 303. M W F 11. Mrs. JARYC.

305-306. ADVANCED READINGS. Throughout the year. Credit four hours a term. Prerequisite, Russian 202. Hours to be arranged. Mrs. JARYC.

Designed for students needing further practice in reading Russian that is not literary.

311. THE RUSSIAN NOVEL. Fall term. Credit four hours. T Th S 9. Mr. GIBIAN.

Works by Gogol, Goncharov, Turgenev, Dostoevsky, and Tolstoy; read in translation. Students majoring in Russian will read selected portions of the texts in the original and will be tested thereon.

312. SOVIET RUSSIAN LITERATURE. Spring term in alternate years. Credit four hours. T Th S 9. Mr. GIBIAN.

An introduction to selected works of Russian literature from 1917 to date, examined as social and historical documents, and as works of art. (Read in translation.) Students majoring in Russian will read selected portions of the texts in the original and will be tested thereon.

331. **RUSSIAN POETRY.** Fall term. Credit four hours. Prerequisites, Russian 202 and consent of the instructor. T Th 3 and one hour to be arranged. Mr. GIBIAN.

332. **RUSSIAN DRAMA.** Spring term. Credit four hours. T Th 3 and one hour to be arranged. Prerequisites, Russian 202 and consent of the instructor.

[401. **HISTORY OF THE RUSSIAN LANGUAGE.** Throughout the year in alternate years. Credit four hours a term. Prerequisites, *qualification* in Russian and Linguistics 201-202. M W F 2. Mr. LEED. Not offered in 1963-1964.]

403. **LINGUISTIC STRUCTURE OF RUSSIAN.** Fall term in alternate years. Credit four hours. Prerequisite, *qualification* in Russian and Linguistics 201 or 301. M W F 2. Mr. SAMILOV.

A descriptive study and analysis of Russian linguistic structure. Russian phonetics, phonemics, morphology, and syntax.

404. **RUSSIAN FOR TEACHERS.** Spring term in alternate years. Credit four hours. Prerequisites, *qualification* in Russian, Linguistics 201 or 301, and Russian 403. M W F 2. 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.

431. **RUSSIAN PROSE FICTION.** Fall term. Credit four hours. Prerequisite, consent of the instructor. T Th 2, and one hour to be arranged. Mr. GIBIAN.

432. **PUSHKIN.** Spring term. Credit four hours. Prerequisite, consent of the instructor. T Th 2, and one hour to be arranged. Mr. GIBIAN.

COURSES PRIMARILY FOR GRADUATE STUDENTS

501. **OLD BULGARIAN.** Fall term in alternate years. Credit four hours. Hours to be arranged. Mr. SAMILOV.

502. **OLD RUSSIAN.** Spring term in alternate years. Credit four hours. Hours to be arranged. Mr. LEED.

521-522. **RUSSIAN LITERATURE FROM THE BEGINNINGS TO 1800.** Throughout the year. Credit four hours a term. M W F 2. Students who have not taken 521 may enter 522 only with the permission of the instructor. Reading knowledge of Russian required. Mr. SAMILOV.

COMPARATIVE SLAVIC LINGUISTICS. (See Linguistics 551-552.)

600. **SEMINAR IN SLAVIC LINGUISTICS.** Offered in accordance with student needs. Credit four hours. Hours to be arranged. Mr. FAIRBANKS.

671-672. **GRADUATE SEMINAR IN RUSSIAN LITERATURE.** Credit four hours. Th 4-6. The topics vary from year to year according to student needs. Mr. GIBIAN.

SERBO-CROATIAN

Mr. M. SAMILOV.

[121-122. **ELEMENTARY COURSE.** Throughout the year. Credit three hours a term. Prerequisite, *qualification* in Russian or consent of the instructor. Hours to be arranged. Mr. LEED. Not offered in 1963-1964.]

SINHALESE

MESSTRS. G. H. FAIRBANKS, J. W. GAIR, and Staff.

101-102. **ELEMENTARY COURSE.** Throughout the year. Credit six hours a term. Hours to be arranged.

SPANISH

MESSTRS. F. B. AGARD, C. BANDERA, D. BRENES, R. L. HADLICH, D. F. SOLÁ, and Staff.

The Spanish major is designed to give the student oral control of the language, adequate proficiency in its written expression, and a creditable knowledge of the literature and culture of Spain and Spanish America.

Satisfactory completion of the major should enable the student to meet language requirements for a provisional teaching certificate, to do graduate work in Spanish, or to satisfy government standards for acceptance into training programs of the State Department and other agencies.

For a major in Spanish the following are to be completed: (1) prerequisites; Spanish 201

and Spanish 204 or its equivalent; (2) acceptance by Mr. Sold and Mr. Brenes; (3) major courses: Spanish 303-304, 311-312, 403, 461-462; (4) four additional courses to be taken from the following: Spanish 353-354, 401-402, 412, 421, 422, 423, 425-426, 464, 467-468.

101. ELEMENTARY COURSE. Either term. Credit six hours. Fall term: drill, daily at 8, 9, or 12. Spring term: drill, daily at 8 or 9. No lectures. Language laboratory attendance is required.

102. ELEMENTARY COURSE. Either term. Credit six hours. Prerequisite, Spanish 101 or its equivalent. Students who have previously studied Spanish should consult page 13 before registering for this course. Fall term: drill, daily at 9; lecture W F 12. Spring term: drill, daily at 9, 10, or 12. No lecture. Language laboratory attendance is required.

112. ELEMENTARY COURSE. Either term. Credit three hours. Prequalification course for students entering above the level of placement in Spanish 102. Fall term: drill, M W F 8, 10, 11, or 12; lecture, Th 9. Spring term: drill, M W F 9, 10, or 12; lecture, M 3.

191. ELEMENTARY COURSE. Either term. No credit. Open to those who have completed Spanish 102 but failed to qualify. Fall term: drill, M W F 8, 10, 11, or 12; lecture, Th 9. Spring term: drill, M W F 9, 10, or 12; lecture, M 3.

201. INTRODUCTION TO HISPANIC LITERATURE. Either term. Credit three hours. Prerequisite, *qualification* in Spanish or consent of the instructor. (For definition of *qualification*, see page 13.) M W F 8 or T Th S 9. Mr. BANDERA.

An intermediate reading course in which texts of established literary quality are read. The purpose is twofold: 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.

203. INTERMEDIATE COMPOSITION AND CONVERSATION. Either term. Credit three hours. Prerequisite, *qualification* in Spanish (for definition of *qualification*, see page 13). Fall term: M-F 9, 11, or 2. Spring term: M-F 11, 12, or 2.

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. Either term. Credit three

hours. Prerequisite, Spanish 203. Fall term: M-F 9 or 3. Spring term: M-F 9, 10, or 3.

The study of advanced grammar. Exercises designed to improve the student's ability to speak, read, and write Spanish.

303. ADVANCED COMPOSITION AND CONVERSATION. Fall term. Credit four hours. Prerequisite, Spanish 204. M-F 11.

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. Cultural content is oriented to Spain.

304. ADVANCED COMPOSITION AND CONVERSATION. Spring term. Credit four hours. Prerequisite, Spanish 303. M-F 11.

Extensive reading in current Spanish language publications. The study of fundamental aspects of style in standard written Spanish. Cultural content is oriented to Spanish America.

311-312. MASTERPIECES OF HISPANIC LITERATURE. Throughout the year. Credit four hours a term. Prerequisite, Spanish 201, four years entrance Spanish, or consent of the instructor. May be entered in second term. M W F 11. Mr. BRENES.

Reading and discussion of representative works of Spanish and Spanish American literature. Works chosen are read in their entirety. Most of the first-semester material is from Golden Age and colonial authors. Second semester deals with the nineteenth and twentieth centuries. Class conducted in Spanish.

[353-354. **THE SPANISH NOVEL.** Not offered in 1963-1964.]

[401-402. **HISTORY OF THE SPANISH LANGUAGE.** Throughout the year in alternate years. Credit four hours a term. Prerequisites, *qualification* in Spanish and Linguistics 201 or 301. M W F 2. Mr. AGARD. Not offered in 1963-1964.]

403. THE GRAMMATICAL STRUCTURE OF SPANISH. Fall term. Credit four hours. Prerequisites, *qualification* in Spanish and Linguistics 201 or 301. M W F 2. Mr. SOLÁ or Mr. HADLICH.

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 or 301. M W F 2. Mr. SOLÁ or Mr. HADLICH.

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 431-432.)

[412. **MEDIEVAL PROSE WORKS.** Not offered in 1963-1964.]

[413. **THE EPIC.** Not offered in 1963-1964.]

[421. **THE GOLDEN AGE.** Not offered in 1963-1964.]

[422. **GOLDEN AGE NONDRAMATIC LITERATURE.** Not offered in 1963-1964.]

423. **THE PICARESQUE NOVEL.** Fall term. Credit four hours. Prerequisite, a Spanish 300-level literature course, or consent of the instructor. Hours to be arranged. First meeting of class in Goldwin Smith 278, the first day of instruction, at 4:30 p.m. Mr. BRENES.

A study of the development and degeneration of the picaresque novel in the seventeenth century in Spain. Lectures and discussion in Spanish.

[425-426. **CERVANTES.** Not offered in 1963-1964.]

461-462. **REALISM: DRAMA AND THE NOVEL.** Throughout the year. Credit four hours a term. Prerequisite, a Spanish literature course at the 300-level or consent of the instructor. May be entered in the second semester. M W F 9. Mr. BANDERA.

A study of the modalities of Spanish realism as found in representative works from the Middle Ages to the present. Intensive reading of the complete examples chosen. Lectures and discussion in Spanish.

463. **THE HISPANIC DRAMA.** Spring term. Credit four hours. Prerequisite, a Spanish 300-level literature course or consent of the instructor. Hours to be arranged. First class meeting in Goldwin Smith 278, the first day of instruction, at 4:30 p.m. Br. BRENES.

An intensive study of representative plays from the Golden Age to the present. Class lectures and discussions in Spanish.

[464. **HISPANIC POETRY.** Not offered in 1963-1964.]

465-466. **UNDERGRADUATE SEMINAR IN SPANISH LITERATURE.** Throughout the year. May be entered in the second term. Credit four hours a term. Prerequisite, Spanish 311 or 312 and consent of the instructor. Required of Spanish majors; open to non-majors. Hours to be arranged. First meeting in Goldwin Smith 278, on the first day of instruction, at 4:30 p.m. Mr. BRENES.

Topic to be announced.

467-468. **HONORS WORK IN HISPANIC LITERATURE.** Throughout the year. May be entered in the second term. Credit four hours a term. Prerequisite, consent of the instructor. Hours to be arranged. Staff.

517-518. **GRADUATE SEMINAR IN HISPANIC LITERATURE.** Throughout the year. May be entered in the second term. Credit four hours a term. Hours to be arranged. Staff.

Topic to be announced.

600. **SEMINAR IN IBERO-ROMANCE LINGUISTICS.** Offered in accordance with student needs. Credit four hours. Hours to be arranged. Mr. AGARD.

TELUGU

Mr. G. B. KELLEY and Staff.

101-102. **ELEMENTARY COURSE.** Throughout the year. Credit six hours a term. Hours to be arranged.

THAI

Mr. R. B. JONES, JR., and Staff.

101-102. **ELEMENTARY COURSE.** Throughout the year. Credit six hours a term. M-F 10, M W F 11.

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.

URDU

Mr. G. H. FAIRBANKS and Staff.

101-102. **ELEMENTARY COURSE.** Throughout the year. Credit six hours a term. Drill, daily at 9. Lecture, T Th 10.

VIETNAMESE

Mr. R. B. JONES, JR., and Staff.

101-102. **ELEMENTARY 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. JONES.

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. JONES.

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. JONES.

Selected readings in Vietnamese writings in various fields.

MUSIC

Mr. WILLIAM W. AUSTIN, *Chairman*; MESSRS. WILLIAM CAMPBELL, BERNARD GILMORE, DONALD GROUT, WILLIAM HOLMES, JOHN HSU, KAREL HUSA, JOHN KIRKPATRICK, RUDOLPH KREMER, SHELDON KURLAND, ROBERT PALMER, THOMAS SOKOL, Miss BARBARA TROXELL.

Freshmen considering music as a possible major or minor field should register for Music 151-152, and should consult the chairman of the Department as early as possible, to make tentative plans for a comprehensive program in accordance with their abilities and previous musical training. The sophomore year is not too late for a decision, provided that during that year the student is enrolled in the appropriate courses.

Prerequisites for admission to the major are: Music 151-152, with a grade above 75 in each part of the final exam (including sight singing and keyboard playing); Music 282; Music 321-322; and participation in one of the musical organizations or ensembles (Music 331 through 338 and 441 through 444).

Required courses for the A.B. with major in music are: Music 351-352; 381-382; 451; 481; a second year of individual instruction in performance and of participation in a musical organization or ensemble; a course in conducting and score-reading (Music 461-462 or 463-464); and one of the following: 452, 482, or 490.

Candidates for Honors in music will be designated by the Department at the beginning of the second term of their junior year. Honors candidates will take Music 401-402 in addition to the courses regularly required for a major. Each candidate will submit an Honors thesis or a composition not later than April 25 of his senior year and will be required to pass a general examination in the theory and history of music not later than May 25 of his senior year.

Students electing to satisfy the requirement in expressive arts of Distribution I may offer Music 213-214, 215-216, or 151-152.

The following courses may be offered toward the satisfaction of Distribution II requirements: Music 213-214, 215-216 (if not used for Distribution I), and 313-314.

A large collection of recorded music and scores is housed in the Department of Music, where a number of phonograph listening rooms are available. 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 (Concert Band, Big Red Band, Repertoire 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

151-152. THEORY I. Throughout the year. Credit three hours a term. A knowledge of the rudiments of music and some ability to play an instrument are required for admission. First term prerequisite to second. M-F 9. Mr. HSU.

Designed for music majors and other qualified students. An integrated theory course, prerequisite for all advanced courses in music. Study of the fundamental elements of music: rhythm, intervals, scales, triads; harmony, elementary counterpoint, and introduction to composition in instrumental style. Drill in aural discrimination, sight singing, keyboard harmony, sight reading; melodic, harmonic, and contrapuntal dictation; and score reading.

215-216. BASIC TECHNIQUES OF MUSIC. Throughout the year. Music 215 repeated in spring term. Credit three hours a term. Ability to sing on pitch is required for admission; some ability to play an instrument is desirable. First term prerequisite to second. M-F 9. Mr. KURLAND. Music 215, spring term: Mr. GILMORE. This course may not be counted toward the requirements for the major in music.

Study of the fundamental techniques of music. Includes rhythmic, melodic, and harmonic dictation; sight singing; writing of melody and simple four-part harmony; keyboard harmony; and listening to recorded masterpieces. Second term includes introduction to analysis and simple contrapuntal writing for voices and instruments.

351-352. THEORY II. Throughout the year. Credit four hours a term. Prerequisite, Music 152 or equivalent. First term prerequisite to second. M W F 10 and T Th 3. Messrs. KREMER and PALMER.

Includes advanced harmony and intermediate counterpoint and analysis. A continuation of Music 151-152, with more advanced drill in the areas specified in the description of that course. Special emphasis on the study of chromatic harmony and contrapuntal writing in two and three voices. There will be analysis of melody and harmony and of some of the fundamental homophonic and contrapuntal forms.

451. ADVANCED COUNTERPOINT AND ANALYSIS. Fall term. Credit four hours. Prerequisite, Music 352 or equivalent. May be repeated for credit in two successive years. M W 12 and Th 2. Mr. PALMER.

Advanced problems of contrapuntal writing in three and four voices. Material of the

course will consist, in alternate years, of: (a) an introduction to canon and fugue, including analysis of contrapuntal works by various composers with special attention to those of J. S. Bach (in 1963-1964); and (b) contrapuntal techniques of the sixteenth century, including analysis of works by Palestrina and his contemporaries (in 1964-1965).

401-402. HONORS WORK IN MUSIC. Credit four hours a term. Open only to Honors candidates in their senior year. Mr. AUSTIN and members of the Department.

[452. COMPOSITION (PROSEMINAR). Spring term. Credit four hours. Prerequisite, Music 351 or equivalent. May be repeated for credit. Mr. HUSA. Not offered in 1963-1964; will be offered in 1964-1965.]

[455. ORCHESTRATION. Fall term. Credit four hours. Prerequisite, Music 352. Mr. HUSA. Not offered in 1963-1964.]

461-462. ORCHESTRAL CONDUCTING AND SCORE READING. Throughout the year. Credit two hours a term. Prerequisite, Music 352. M W 11. Mr. HUSA.

The fundamentals of score reading and conducting technique. Study of orchestral scores from baroque, classical, romantic, and contemporary periods. Students will occasionally conduct a small group. Opportunity will also be given to those who qualify to conduct the University Orchestras.

[463-464. CHORAL CONDUCTING AND SCORE READING. Throughout the year. Credit two hours a term. Prerequisite, Music 352. Mr. SOKOL. Not offered in 1963-1964.]

MUSIC HISTORY

213-214. THE ART OF MUSIC. Throughout the year. Credit three hours a term. Open to sophomores and upperclassmen. First term, or consent of instructor, prerequisite to second. T Th 11. Recitation sections, Th 2, 3, F 8, 10, 11, 12, 2, 3, S 8, 9, 10, 11. Concerts on evenings of Oct. 22, Nov. 19, Jan. 14, and March 17. Mr. AUSTIN and assistants.

Studies to foster the growth of rational enjoyment of the art of music. First term: the elements and instruments of music and musical forms, as exemplified in music of various epochs and nations, and various degrees of complexity. Second term: the work of representative composers in relation to their social and artistic environment, with emphasis on Mozart's *Don Giovanni* and Stravinsky's *Rake's Progress*.

282. INTRODUCTION TO MUSICAL

STYLE AND ANALYSIS. Spring term. Credit three hours. Prerequisite, Music 152 or equivalent. M W F 11. Mr. AUSTIN.

A study of the interplay of idiom and structure in various styles through analysis of typical masterpieces.

313. MASTERPIECES OF MUSIC. Fall term. Credit four hours. Prerequisite, consent of instructor. M W F 12. Mr. GROUT.

Study of selected works and their historical environment. In 1963 the subject will be "Opera in the Twentieth Century;" in 1964, "Verdi and Wagner: Opera and Music Drama."

314. THE GREAT TRADITION IN MUSIC. Spring term. Credit four hours. Prerequisite, consent of instructor. M W F 12. Mr. GROUT.

Intensive study of a single work or group of works as representative of a given tradition and style. In 1964 the subject will be "Bach's *Passion according to St. Matthew*," in 1965, "Beethoven's String Quartets."

381-382. HISTORY OF MUSIC I. Throughout the year. Credit four hours a term. Prerequisite, Music 282. First term prerequisite to second. M 8-10, W 9-10. Mr. HOLMES. History of musical styles from the Middle Ages to the present. Readings from theoretical sources (in translation) and written reports.

481. HISTORY OF MUSIC II. Fall term. Credit four hours. Prerequisite, Music 382. M 2-4, and individual conferences to be arranged. Mr. GROUT.

Intensive study of selected topics, with analyses, collateral reading, and written reports.

482. PROSEMINAR IN MUSICOLOGY. Spring term. Prerequisite, Music 481. M 2-4. Mr. GROUT.

Principles of research. Introduction to notation, with exercises in transcription from sources and preparation of performing editions.

MUSICAL PERFORMANCE

321-322. INDIVIDUAL INSTRUCTION IN VOICE, ORGAN, PIANO; STRING, WOODWIND, AND BRASS INSTRUMENTS. Throughout the year. For credit, see below. Consent of instructor required.

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: \$40 for the use of a pipe

organ in Barnes Hall or Bailey Hall; \$10 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. (Students should register in Music 321-322 for one hour's credit the first term and two hours' credit the second term.) The basic fees involved are then multiplied by one and a half (lesson fee \$90; practice fee \$60, \$15, and \$7.50). A student may register for this course in successive years.

490. SUPPLEMENTARY STUDIES IN PERFORMANCE AND PEDAGOGY. Spring term. Credit hours to be arranged. Consent of instructor required. Mr. CAMPBELL and Staff.

MUSICAL ORGANIZATIONS AND ENSEMBLES

Throughout the year. Credit one hour a term. Consent of instructor required; admission 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.

331-322. SAGE CHAPEL CHOIR. Th 7:15-9 p.m., Sun. 9:30 a.m. Mr. SOKOL.

335-336. CORNELL ORCHESTRAS. Rehearsals for the Cornell Symphony Orchestra: W 7:30-10 p.m., full orchestra; alternate T 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 CONCERT BANDS. Th 7-9 p.m., F 4:30-6 p.m. or M 4:30-6 p.m., W 7-9 p.m. and additional hours to be arranged. Messrs. CAMPBELL and GILMORE.

441-442. CHAMBER MUSIC ENSEMBLE. Hours to be arranged. Messrs. Hsu and KURLAND.

443-444. PRECLASSICAL CHAMBER MUSIC ENSEMBLE. (SINGERS AND INSTRUMENTALISTS.) M 3-4:30. Messrs. Hsu and Sokol.

Study and performance of selected music from the Middle Ages to 1750.

COURSES PRIMARILY FOR GRADUATES

551-552. **SEMINAR IN COMPOSITION.** Throughout the year. Credit four hours a term. Open to seniors by permission. W 2-4. Mr. PALMER.

Intended to make the student acquainted with compositional practices in contemporary styles and to develop his creative abilities.

553. **ANALYTIC TECHNIQUE.** Fall term. Credit four hours. Prerequisite, Music 352 or equivalent. T 9-10, Th 9-11. Mr. PALMER. Designed to develop a technique of analysis applicable to the music of any period.

580. **SEMINAR IN CONTEMPORARY MUSIC.** Spring term. Credit four hours. Prerequisite, Music 451 or equivalent. Required of all graduate students in composition dur-

ing each year of residence except the last. T 9-11. Mr. PALMER.

Detailed analysis of a limited number of works representative of the main trends in twentieth-century music. Material covered will vary from year to year.

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. Open to seniors by permission. M 9-11. Mr. AUSTIN.

The basic materials and techniques of musicological research.

681-682. **SEMINAR IN MUSICOLOGY.** Throughout the year. Credit four hours a term. T 2-4. Mr. GROUT.

PHILOSOPHY

Mr. STUART M. BROWN, JR., *Chairman*; MESSRS. MAX BLACK, JOHN V. CANFIELD, MENDEL F. COHEN, KEITH S. DONNELLAN, NORMAN MALCOLM, NELSON C. PIKE, DAVID SACHS, SYDNEY S. SHOEMAKER, FRANK N. SIBLEY, RICHARD R. K. SORABJI, ZENO VENDLER.

Students expecting to major in philosophy must begin their systematic study of it in their underclass years and, at the very latest, in the sophomore year. For admission to the major, the normal requirement is Philosophy 201 and 210 and one additional underclass course to be passed with a grade of 75 or above. Application for admission is made to the Chairman of the Department.

For the major itself, the requirement is 32 hours of upperclass philosophy courses, taken normally at the rate of two four-hour courses per term. Each major must complete the following: (1) at least one additional course in the history of philosophy chosen from among Philosophy 301, 303, and 305; and (2) at least two courses numbered above 400.

Students who wish to graduate with Honors in philosophy should discuss this with the chairman of the Department at the time they apply for admission to the major. For provisional acceptance as a candidate for Honors, a student must have chosen a philosophy major, have a cumulative average of 80 for all work in the College and have an average of 85 for courses in philosophy. All candidates for Honors normally enroll in the Honors Seminar (Philosophy 601-602) in both their junior and senior years. In addition, in their senior year, they pursue a program of research in both the fall and spring terms and, during the spring term, write an Honors essay.

The Distribution I requirement in the Humanities may be satisfied by completing any one of the following groups: Philosophy 101-102, 101-210, 201-301, 221-325.

101. INTRODUCTION TO PHILOSOPHY. Either term. Credit three hours. Open to freshmen and sophomores only. Fall term: M W F 10, 12, T Th S 9, 10, 12. Spring term: M W F 12, T Th S 9, 11, 12. Registration is limited to 30 students a section. MESSRS. CANFIELD, COHEN, DONNELLAN, PIKE, SACHS, SHOEMAKER, SORABJI.

An introduction to philosophical ideas and problems through a study of Descartes' *Meditations*, Berkeley's *Principles*, and selected writings by Aquinas. Collateral reading from classical and contemporary sources will be assigned.

102. INTRODUCTION TO PHILOSOPHY: SECOND COURSE. Either term. Credit three hours. Prerequisite, Philosophy 101. Open to freshmen and sophomores only. Fall term: T Th S 10, 11. Spring term: T Th S 9, 12. Registration is limited to 30 students a section. MESSRS. PIKE and SORABJI.

A continuation of Philosophy 101, introducing several new problems and using a different set of works: Plato's *Gorgias*, Hobbes' *Leviathan*, and selected writings by Marx and Engels. Collateral reading from classical and contemporary sources will be assigned.

110. INTRODUCTION TO LOGIC. Either term. Credit three hours. Open to freshmen and sophomores only. Fall term: M W F 9, T Th S 9. Spring term: M W F 9, T Th S 9. Registration is limited to 40 students a section. MESSRS. CANFIELD and COHEN.

An introduction to the principles and techniques of traditional and symbolic logic. Includes discussion of types of arguments, problems in logic, and logical concepts relevant to philosophy. Recommended to all underclassmen, including prospective philosophy majors, with an interest in logic. Upperclassmen with an interest in logic should obtain advice from the instructor of Philosophy 412.

201. ANCIENT AND MEDIEVAL PHILOSOPHY. Fall term. Credit four hours. Open to sophomores and upperclassmen throughout the University. Required for majors in philosophy. T Th S 9. Discussion sections to be arranged. MR. SORABJI.

Occidental philosophical thought from its Greek origins to the end of the medieval period. A study of the most important figures, works, and systems in their cultural context.

Philosophy 201 and 301 comprise a sequence in the history of philosophy. This sequence satisfies both the Distribution I requirement in the humanities and the history of philosophy requirement for the philosophy major.

205. ELEMENTARY SEMANTICS. Spring term. Credit four hours. Open to sophomores and upperclassmen. Lectures, M W 2. Discussion sections, M or W 3. Registration is limited to 60 students. MR. BLACK.

A survey of the philosophy of language and symbolism, with detailed practice in interpretation. Topics include sign-using behavior, the nature of language, special types of discourse (scientific, poetic, mathematical), semantic fallacies.

210. PHILOSOPHICAL PROBLEMS. Either term. Credit four hours. Recommended for sophomores and juniors who are majors or prospective majors in philosophy; others may be admitted, but must obtain the permission of the instructor. Registration is limited to 35 students a section.

The study of a selected philosophical problem. Contemporary as well as classical sources.

Fall term: M W F 2, and a fourth hour to be arranged. MR. MALCOLM. Topic: Freedom of the Will.

Spring term: M W F 10, and a fourth hour to be arranged. MR. DONNELLAN. Topic: Freedom of the Will. M W F 2, and a fourth hour to be arranged. MR. SIBLEY. Topic: Knowledge of the External World.

221. ETHICS. Fall term. Credit four hours. Open to sophomores and upperclassmen. Lectures, M W F 11, and a fourth hour to be arranged. MR. BROWN.

The basic moral ideas of Western civilization as interpreted by its major philosophers and moralists—Greek ethical theory, Old and New Testament morality, Hobbes and the British Utilitarians, Butler and Kant.

Philosophy 221 and 325 comprise an 8-hour sequence in moral philosophy which satisfies the Distribution I requirement in the humanities.

301. MODERN PHILOSOPHY. Spring term. Credit four hours. Open to upperclassmen throughout the University and to sophomores who have taken Philosophy 201. T Th S 9. Discussion sections to be arranged. MR. SHOE-MAKER.

Development of occidental philosophy from the sixteenth to the end of the nineteenth century. A study of the most important figures, works, and systems in their cultural context.

[**303. MEDIEVAL PHILOSOPHY: ADVANCED COURSE.** Not given in 1963-1964.]

305. SPECIAL TOPICS IN THE HISTORY OF PHILOSOPHY. Spring term. Credit four hours. Prerequisite, six hours of philosophy or consent of the instructor. T Th S 11, and a fourth hour to be arranged. MR. PIKE.

Topic for 1963-1964: to be announced.

308. CONTEMPORARY PHILOSOPHY. Fall term. Credit four hours. Prerequisite, six hours of philosophy or consent of the instructor. M W F 11, and a fourth hour to be arranged. MR. CANFIELD.

A study of major figures or movements in twentieth-century philosophy.

Topic for 1963-1964: G. E. Moore.

310. PHILOSOPHY IN LITERATURE. Spring term. Credit four hours. Open without prerequisite to upperclassmen in the College and to others by consent of the instructor. M W F 10, and a fourth hour to be arranged. MR. SACHS.

An examination of philosophical topics concerning the condition and conduct of human life, as they appear in a selection of literary works, from Sophocles' *Oedipus Rex* to Kafka's *Metamorphosis*.

313. AMERICAN PHILOSOPHY. Fall term. Credit four hours. Open to upperclassmen without prerequisite. M W F 9, and a fourth hour to be arranged. MR. BROWN.

An analytic study of the main types of theory used, between 1650 and 1850, to justify and explain American political institutions: the democratic and theocratic implications of puritan theology, Christian liberty and political freedom, social contract theory and inalienable rights, the concept of democracy in the *Federalist Papers*, nullification and concurrent majority.

322. PHILOSOPHY OF RELIGION. Fall term. Credit four hours. Open to upperclassmen without prerequisite. T Th S 12, and a fourth hour to be arranged. Mr. PIKE.

A philosophical examination of some major theological issues: religious experience, religious language, arguments for the existence of God, miracles, faith.

323. AESTHETICS. Fall term. Credit four hours. Open to majors in English, history of art, literature, and philosophy; to others only by consent of the instructor. T Th S 10, and a fourth hour to be arranged. Mr. SIBLEY.

An examination of the following topics: the nature of problems of aesthetics, aesthetic judgments and critical reasoning, taste, expression of emotion, representation, form, the nature of a work of art.

325. ETHICAL THEORY. Spring term. Credit four hours. Prerequisite, Philosophy 221 or consent of the instructor. M W F 11, and a fourth hour to be arranged. Mr. BROWN.

A systematic study of one or two types of ethical theory.

Topic for 1963-1964: Utilitarianism and its critics.

327. INTRODUCTION TO PHILOSOPHY OF SCIENCE. Fall term. Credit four hours. Open to juniors, seniors, and graduate students. Lectures, M W 2. Discussion, F 2. Discussion section for graduate students to be arranged. Mr. BLACK.

Critical analysis of scientific methods with special reference to the natural science; detailed study of such topics as causality, theory making, concept formation and measurement.

333. PHILOSOPHY OF PSYCHOLOGY. Spring term. Credit four hours. Open to upperclassmen majoring in philosophy or psychology, to others only by consent of the instructor. M W 2, F 2-4. Mr. MALCOLM.

In the beginning of the course some study will be given to the "mind-body problem," i.e. the nature of the relationship between mental states or consciousness on the one hand, and bodily states and behavior on the other. The topic of "unconscious" mental

states will then be taken up, with special attention given to the place of this idea in Freudian psychology.

412. DEDUCTIVE LOGIC. Fall term. Credit four hours a term. Prerequisite, consent of the instructor. Intended for philosophy majors, graduate students, and others having suitable background. M W F 12, and a problems section to be arranged. Mr. DONNELLAN.

Introduction to current methods of formal logic and their philosophical implications—propositional calculus, calculus of functions, theory of descriptions, properties of formal systems.

[413. **DEDUCTIVE LOGIC.** Not given in 1963-1964.]

[420. METAPHYSICAL THEORIES. Fall term. Credit four hours. Open to upperclassmen and graduate students. M W F 12, plus discussion section as arranged. Mr. BAMBROUGH. An examination of types of argument which recur in the history of metaphysical disputes. Offered in 1962-1963, will not be offered in 1963-1964.]

421. PROBLEMS IN PHILOSOPHY OF SCIENCE. Spring term. Credit four hours. Prerequisite, Philosophy 327. Open to seniors and graduate students; others by consent of the instructor. M W F 11, and a fourth hour to be arranged. Mr. CANFIELD.

Intensive study of one or two selected problems.

Topic for 1963-1964: to be announced.

423. METAPHYSICS. Fall term. Credit four hours. Open to graduate students and seniors majoring in philosophy, to others only by consent of the instructor. M W F 11, and a fourth hour to be arranged. Mr. MALCOLM.

Topic for 1963-1964: Descartes.

425. CONTEMPORARY ETHICAL THEORY. Fall term. Credit four hours. Open to graduate students and seniors majoring in philosophy, to others only by consent of the instructor. T Th S 11, and a fourth hour to be arranged. Mr. COHEN.

Topic for 1963-1964: to be announced.

427. THEORY OF KNOWLEDGE. Spring term. Credit four hours. Open to graduate students and to seniors majoring in philosophy; others only by consent of the instructor. M W F 10, and a fourth hour to be arranged. Mr. SIBLEY.

Topic for 1963-1964: Perception.

429. PHILOSOPHY OF LOGIC. Spring term. Credit four hours. Offered in alternate years.

Prerequisite, successful completion of 412, or equivalent preparation (consent of instructor required). M W F 12, and a fourth hour to be arranged. Mr. BLACK.

Selected topics such as the nature of inference, the logical paradoxes, the theory of types, Godel's theorem, Skolem's theorem, the foundations of mathematics.

430. PLATO AND ARISTOTLE. Spring term. Credit four hours. Open to philosophy majors, graduate students, and others by consent of the instructor. T Th S 11, and a fourth hour to be arranged.

Topic for 1963-1964: Aristotle's *Nicomachean Ethics*.

490-491. SPECIAL STUDIES IN PHILOSOPHY. Throughout the year. Credit three hours per term. Open only to Honors students in their senior year. Members of the Department.

SEMINARS

576. PLATO. Fall term. Credit three hours. Th 3-5. Mr. SACHS.

585. ETHICS AND VALUE THEORY. Spring term. Credit three hours. Th 3-5. Mr. BROWN.

Topic for 1963-1964: Kant's moral and legal philosophy.

587. AESTHETICS. Fall term. Credit three hours. W 3-5. Mr. SIBLEY.

Topic for 1963-1964: to be announced.

588-589. METAPHYSICS. Both terms. Credit three hours.

Fall term: F 3-5. Topic: Mental Events and Objects. Mr. SHOEMAKER.

Spring term: W 3-5. Topic: to be announced. Mr. DONNELLAN.

[**590. ANCIENT AND MODERN ETHICS.** Fall term. Credit three hours. W 3-5. Mr. BAMBROUGH. Offered in 1962-1963, will not be offered in 1963-1964.]

594. THEORY OF KNOWLEDGE. Spring term. Credit three hours. T 3-5. Mr. MALCOLM.

Topic: Dreaming.

595. SEMANTICS AND LOGIC. Fall term. Credit three hours. Open only to graduate students. T 2-4. Mr. BLACK.

Topic: to be announced.

601. HONORS SEMINAR. Spring term. Credit four hours. F 3-5. Mr. SHOEMAKER.

PHYSICS

Mr. L. G. PARRATT, *Chairman*; MESSRS. V. AMBEGAOKAR, L. L. BARNES, A. J. BEARDEN, K. BERKELMAN, H. A. BETHE, R. BOWERS, B. H. BRANDOW, P. CARRUTHERS, D. R. CORSON, R. M. COTTS, T. R. CUYKENDALL, J. P. DELVAILLE, J. W. DEWIRE, D. A. EDWARDS, D. B. FITCHEN, C. W. GARTLEIN, L. H. GERMER, K. I. GREISEN, D. R. HARRINGTON, P. L. HARTMAN, D. F. HOLCOMB, E. J. IRWIN, T. KINOSHITA, J. A. KRUMHANS, D. M. LEE, J. S. LEVINGER, R. M. LITTAUER, H. MAHR, R. McALLISTER, B. D. McDANIEL, P. MORRISON, H. F. NEWHALL, J. OREAR, T. J. PETERSON, R. O. POHL, T. N. RHODIN, H. S. SACK, E. E. SALPETER, B. M. SIEGEL, J. SILCOX, R. H. SILSBEE, A. SILVERMAN, R. L. SPROULL, P. C. STEIN, R. TALMAN, A. TAYLOR, D. H. TOMBOULIAN, W. WEBB, K. G. WILSON, R. R. WILSON, G. J. WOLGA, and W. M. WOODWARD.

A student will ordinarily be admitted to a major program in physics if he has passed at a good level of proficiency one year of college physics and of calculus. Two physics-major options are available with respective minimum requirements as follows:

OPTION A: (a) Thirty credit hours of physics courses selected from those courses indicated by the symbol # in the list below, including Physics 410 and 443, with twenty of these thirty hours at a grade of 70 or higher; and (b) Mathematics 421 (or 216); or their equivalent. Graduate courses in physics (numbered above 499) will not be accepted as substitutes in meeting requirement (a). Students interested in this option should take in the freshman year calculus and Physics 207-208 (or their equivalent by advanced placement); it is possible but difficult to complete this option starting in the sophomore year. Students in engineering may transfer into this option with Physics 225-226 or 227-228 reckoned as six of the thirty credit hours of requirement (a).

OPTION B: (a) Fifteen credit hours of physics courses numbered above 300 and approved by the major adviser, including Physics 310 and 436; (b) three credit hours in mathematics beyond Mathematics 113 or 221; and (c) eighteen credit hours in approved courses in the natural sciences other than physics with eight of these eighteen hours in courses numbered above 300; or their equivalent. Up to eight of the eighteen hours of requirement (c) may be in either history of science or philosophy of science. Students in engineering may transfer into this option with the second year of physics for engineering students reckoned as three of the 15 credit

hours of requirement (a); Physics 227-228 is reckoned as meeting the Physics 310 requirement in this option.

Option A is intended primarily for students who plan to pursue graduate studies in a physical or biological science, or otherwise to become professional scientists; Option B is intended primarily for students who have broader interests, e.g., for students who seek a general cultural education at the Bachelor-degree level with an emphasis in physics, and for those who plan to teach in pre-college programs, to enter the medical profession, or to pursue graduate studies in a nonscience field. The choice of Option B, however, does not preclude a professional career in physics or other natural science if the student elects more than the minimal work in physics and mathematics required for this option. Otherwise the Option B student who is accepted for graduate study may expect a corresponding prolongation of his period of graduate study.

A student who wishes a thorough preparation for graduate work in physics should take all the courses indicated by the symbol # and also Mathematics 423, or their equivalent.

Students graduating with a physics major after February, 1964, must meet the requirements of either Option A or Option B, rather than the requirements last stated in the Announcement of the College of Arts and Sciences for the year 1960-1961; students graduating before then may, with the approval of the major adviser, satisfy either the old or the new requirements.

Option A students are strongly advised to meet the foreign language requirement (at least "qualification") in a foreign language different from the one offered for admission to the College; and at least one of these two languages should be French, German, or Russian.

A student may be granted Honors in physics if he has (a) an average grade of 85 or higher in all physics courses offered in fulfillment of the major requirements; (b) satisfactorily passed Physics 491 and 492; and (c) in addition to satisfying the major requirements, three hours (or more) credit in one of the following: (1) special project work, (2) graduate physics courses (numbered above 499) with a grade of 80 or better, (3) interdepartmental work with the prior approval of the Physics Majors Committee and with the recommendation of the instructor(s) upon completion of the work. Any student interested in the Honors program should consult with his major adviser before registering for the work of his senior year.

Students may satisfy the requirements of Distribution I in physical sciences with Physics 101-102, 201-202, 207-208, or with Cornell Summer Session courses Physics 105 and Physics 109 (3 credit hours).

With a physics major, the Distribution II requirements may be satisfied in any of many ways. Commonly, Mathematics 422-423 (Option A) or 215-216 (Option B) are included in this Distribution, and, sometimes, about half of the required fourteen hours are selected from approved advanced courses offered in the College of Engineering.

Physics 121-122 and 223-228 are designed for students in the College of Engineering. The first year's work consists of 121 and 122; the second year's work consists of one of the two-term sequences 223-224, 225-226, or 227-228. The initial assignment to a given sequence in the second year will be made on the basis of the student's previous performance in introductory physics and mathematics courses. Students should see their instructors for section assignments.

Entering freshmen exceptionally well prepared in physics may receive advanced credit for Physics 101-102, 121-122, or 207-208 by demonstrating a high level of proficiency in (a) the advanced standing examination of the College Entrance Examination Board or (b) the advanced standing examination given at Cornell just before the start of classes in the fall. Application for the Cornell examination should be made to the Department of Physics no later than the first registration day. Note that an entering freshman may proceed directly into sophomore physics only if he has also advanced placement in calculus.

101-102. GENERAL PHYSICS. Throughout the year. Credit four hours a term. Prerequisite, three years of college preparatory mathematics or consent of the instructor. Course 101 is prerequisite to 102. Most students majoring in a natural science or who have had or are co-registered in calculus should elect Physics 207-208 instead of this course. Demonstration lectures, M F 9 or 11. Two hours of recitation per week and one two-hour laboratory alternate weeks, as assigned. For prospective teachers of secondary-school science an additional recitation period will be held

T 2. Preliminary examinations will be held at 8 p.m. Oct. 14, Nov. 18, Dec. 16, Jan. 13, Mar. 2, Mar. 23, Apr. 27, and May 18. MESSRS. OREAR, BEARDEN, MORRISON, and Staff.

The vast progress in man's understanding of the physical world, including discussion of present-day problems. Basic principles and their relation to all of physical science. Topics include mechanics, heat, electricity, light, relativity, quantum theory, structure of matter, nuclear physics, and elementary particles. At the level of *Fundamental Physics* by Orear.

121-122. INTRODUCTORY ANALYTICAL PHYSICS. Throughout the year. Credit three hours a term. Prerequisite, calculus or co-registration in Mathematics 191-192. Course 121 is prerequisite to 122. Primarily for students of engineering. Lecture, T 9, 11, or 2. Two discussion periods per week and one 2½ hour laboratory period every other week, as assigned. Preliminary examinations will be held at 7:30 p.m. on Oct. 29, Dec. 3, Jan. 14, Mar. 17, Apr. 14, and May 19. Messrs. NEWHALL, MAHR, TALMAN, and Staff.

The mechanics of particles: kinematics of translation, dynamics, conservation of energy. The properties of the fundamental forces: gravitational, electromagnetic, and nuclear. Conservation of linear momentum, kinetic-molecular theory of gases, properties of solids and liquids, mechanics of rigid bodies, harmonic motion. At the level of *Introductory Analytical Physics*, Second Edition, Parts I and II, by Newhall.

200. PHYSICS FOR STUDENTS OF BIOLOGY. Either term. Credit four hours. Prerequisites, Physics 101-102, six credit hours of college work in chemistry, and six in biological science. Students having a grade below 70 in either Physics 101 or 102 may not register for the course without permission of the instructor. Lectures, T Th 12. Laboratory, T or F 2-4. One discussion period per week to be arranged. Mr. BARNES and Staff.

Lectures, laboratory experiments, and small discussion groups, dealing with selected topics related to the study of biology. Topics selected from the properties of matter, electricity, electromagnetic radiation, and nuclear physics.

201-202. ASPECTS OF THE PHYSICAL WORLD. Throughout the year. Credit three hours a term (only one credit is allowed if taken after Physics 101-102). Prerequisites, three years of college preparatory mathematics and high school physics or chemistry, or consent of the instructor. Course 201 is prerequisite to 202. Primarily a terminal course for non-science majors but may be followed by Physics 207-208. Premedical students should elect Physics 101-102 or 207-208 instead of this course. Lectures, M W F 2. Two 2-hour laboratory-discussion periods per week as assigned. From week to week, varying amounts of this total of 7 hours will be used, depending on the particular topics being considered; averaging about 5 class-laboratory hours per week. Messrs. HOLCOMB, R. WILSON, and Staff.

A set of widely ranging but related topics will be considered, without attempt to cover the whole subject of physical science systematically at any level. A diversity of treatment will be employed, ranging from the exploration

of some literary consequences to detailed problem-solving and laboratory experiment. The central aim is to give non-science majors in the College of Arts and Sciences some insight into the methods and the results of physics and its neighboring sciences, but the course is also open to others. Typical topics: energy—its meaning, measures, and use; the nature of motion; relativity and space-time; elementary particles; atoms and the structure of matter.

207-208. FUNDAMENTALS OF PHYSICS. Throughout the year. Credit four hours a term. Prerequisite, calculus or co-registration in Mathematics 111-112, or consent of instructor; Course 207 is prerequisite to 208. Intended as a first course for most students majoring in a natural science or in mathematics; appropriate as a second course for many students who have completed Physics 201-202, but not for students who have completed Physics 101-102 or 121-122. Demonstration lectures, M W 9 or 12. Two discussion periods a week, and one 2½ hour laboratory period alternate weeks, as assigned. Preliminary examinations will be held at 7:30 p.m. on Oct. 29, Dec. 10, Mar. 10, and Apr. 21. Messrs. POHL, ———, and Staff.

Emphasis is placed on the fundamental concepts in each of the several branches of physics and on the analytical techniques of problem and laboratory work. At the level of *Physics for Students of Science and Engineering* by Halliday and Resnick.

223-224. INTRODUCTORY ANALYTICAL PHYSICS. Throughout the year. Credit three hours a term. Prerequisites, Physics 122 and co-registration in Mathematics 293-294, or equivalent. Course 223 is prerequisite to 224. Lectures, Th 9 or 11. Two discussion periods a week, and one 2½ hour laboratory period every other week, as assigned. Messrs. TOMBOULIAN, PETERSON, and Staff.

An introductory survey of the laws of electric and magnetic fields. Electrostatic field. Magnetic fields of steady currents, induced emfs, dielectrics, and magnetic properties of matter. Wave motion with emphasis on the properties of electromagnetic waves. Interference, diffraction, dispersion, scattering, and polarization of waves. Selected topics from the fields of atomic, solid state, and nuclear physics dealing with wave-particle experiments, optical and X-ray spectra, radioactivity, and nuclear processes. The laboratory work includes experiments in electrical measurements, physical electronics, and wave optics. At the level of *University Physics*, Vol. II, by Sears and Zemansky, and of *Wave Optics and Atomics* by Tombouliau.

225-226. INTRODUCTORY ANALYTICAL PHYSICS. Throughout the year. Credit three hours a term. Prerequisites, same as for Physics 223-224. Course 225 is prerequisite to 226. Lecture, T 9 or 11. Two discussion periods a week, and one $2\frac{1}{2}$ hour laboratory period every other week, as assigned. Messrs. TOMBOULIAN, FITCHEN, BRANDOW, DELVAILLE, and Staff.

The main topics are the same as those listed under Physics 223-224, but their treatment is more analytical and somewhat more intensive.

227-228. INTRODUCTORY ANALYTICAL PHYSICS. Throughout the year. Credit three hours a term. Prerequisites, same as for Physics 223-224. Course 227 is prerequisite to 228. Lecture, S 11. Two discussion periods a week, and one $2\frac{1}{2}$ hour laboratory period every other week, as assigned. Mr. IRWIN and Staff.

The subject matter of electricity and magnetism listed under Physics 223-224 is covered at a level sufficiently advanced to stimulate students of superior competence and interest. At the level of *Electricity and Optics* by Frank and of *Currents, Fields and Particles* by Bitter.

303. INTERMEDIATE MECHANICS. Fall term. Credit three hours. Prerequisites, Physics 102 or 128, and Mathematics 112 (co-registration in Mathematics 113 desirable), or consent of instructor. T Th S 9. Mr. ———.

Newtonian mechanics, conservation laws, central forces, oscillation systems and wave propagation, relativity. At the level of *Mechanics and Properties of Matter* by Stephenson.

#305. The REVOLUTION IN PHYSICS, 1900-1927. Fall term. Credit three hours. Prerequisites, Physics 208 and co-registration in Mathematics 215 or preferably 221, or consent of the instructor. Primarily for students intending to major in a natural science or in mathematics. M W F 11. Mr. GREISEN.

Developments leading to modern physical concepts such as quantum theory of radiation, quantum mechanics, special relativity, and atomic structure. At the level of *Principles of Modern Physics* by French.

307. PHYSICAL OPTICS. Fall term. Credit four hours. Prerequisites, Physics 224 or 303, and co-registration in Mathematics 113 or 221, or consent of the instructor. Lectures, T Th S 11 and S 12. Mr. ———.

Huygens' and Fermat's principles with applications to geometrical optics, wave properties, velocity of light, interference phenomena, Fraunhofer and Fresnel diffraction with ap-

plication to image formation, polarization of light, double refraction, optical activity, and other topics as time permits.

#310. INTERMEDIATE EXPERIMENTAL PHYSICS. Either term. Credit four hours. Prerequisites, Physics 102 or 208 and Mathematics 112, or consent of the instructor. Required of all physics majors who have not had Physics 227-228. Laboratory, M W 1:40-4:30. Lecture, F 1:40-3. Enrollment limited to 40 in the fall term. In the spring term an additional laboratory section will be opened Th 1:40-4:30 and S 9-12 if registration exceeds 40 students. Mr. McALLISTER and Staff.

Lectures on topics in experimental techniques. Selected laboratory experiments to suit the student's need, e.g., mechanics, errors and probability, electricity, magnetism, optics, spectroscopy, and modern physics.

311-312. TEACHING PRE-COLLEGE PHYSICS. Throughout the year. Credit one hour a term. Prerequisites, at least one year of college physics and an interest in teaching science at the junior or senior high school level. W 1:40-4:30. Messrs. MORRISON and CARR.

Discussion and laboratory work. Emphasis is on the nature and design of recent pre-college physical science programs, especially in physics, e.g., the PSSC laboratory experiments and instructional materials. The scientific concepts are stressed. New developments by the students will be encouraged.

314. ATOMIC, NUCLEAR, AND SOLID STATE PHYSICS. Spring term. Credit three hours. Prerequisites, Physics 224 and Engineering 4103, or consent of the instructor. Primarily for students in electrical engineering. Three lectures a week as scheduled by the College of Engineering. Mr. STEIN.

Elements of nuclear and atomic structure; fundamentals of quantum theory; electronic processes in metals, semiconductors, and insulators; nuclear processes. At the level of *Modern Physics* by Sproull.

#318. ANALYTIC MECHANICS. Spring term. Credit four hours. Prerequisites, Physics 208 or 226 (and preferably 305, 310, and 325), and Mathematics 222 or knowledge of vector calculus, or consent of the instructor. M W F 11 and W or Th 2. Messrs. GREISEN and SILCOX.

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 *Principles of Mechanics* by Synge and Griffith or of *Mechanics* by Symon.

322. INTERMEDIATE ELECTRICITY AND MAGNETISM. Spring term. Credit four hours. Prerequisites, Physics 224 or 303 (and preferably 310), and Mathematics 113 or 221, or consent of the instructor. M W F 9 and M 12. Mr. DEWIRE.

Topics selected from Physics 325-326, treated with less mathematical sophistication. At the level of *Electricity and Magnetism* by Duckworth.

323. ELECTRICITY AND MAGNETISM. Fall term. Credit three hours. Prerequisites, Physics 224 and Mathematics 222, or consent of the instructor. Primarily for students in engineering physics. T Th S 11, and one other hour per week to be arranged. Mr. SACK.

Electrostatic and electromagnetic fields, polarization of dielectric and magnetic media, Maxwell's equations with applications. At the level of *Foundations of Electromagnetic Theory* by Reitz and Milford and *Introduction to Electromagnetic Fields and Waves* by Corson.

#325-326. ELECTRICITY, MAGNETISM, AND LIGHT. Throughout the year. Credit four hours each term. Prerequisites, Physics 208 or 226 (and preferably 305 and 310), and Mathematics 222 (or co-registration in 215), or consent of the instructor. Course 325 is prerequisite to 326. Lectures, T Th S 11 and W or Th 3. Preliminary examinations will be held at 7:30 p.m. on Nov. 1, Dec. 13, Mar. 13, and Apr. 24. Fall term, Mr. STEIN. Spring term, Mr. HARRINGTON.

Electrostatics, Laplace and Poisson equations, boundary value problems, dielectrics; magnetostatics, boundary conditions, mechanical and field energy; electrodynamics, wave equation, Maxwell's equations in matter, transmission lines, wave guides, Fresnel and Fraunhofer diffraction, dispersion theory, radiation from a moving charge, special relativity. At the level of *Introduction to Electromagnetic Fields and Waves* by Corson.

#341. KINETIC THEORY AND THERMODYNAMICS. Fall term. Credit four hours. Prerequisites, Physics 208 or 226 (and preferably 305 or 307, and 310), and Mathematics 214 or 222, or consent of the instructor. M W F 9 and Th 12. Mr. LEE.

Concept of temperature, laws of thermodynamics, Carnot cycles, entropy, thermodynamic relations, free energies, phase equilibrium, multi-component systems, chemical reactions, and thermodynamic stability criteria. Application of thermodynamics to physical systems including ideal gases, Van der Waals gas, paramagnetic solids, and the electromagnetic radiation field. Simple probability with a brief discussion of binomial, multinomial, normal

and Poisson distributions, and the random walk problem. Elementary kinetic theory of gases, Maxwellian distribution of velocities, transport phenomena, and the Knudsen gas. Introduction to statistical mechanics including a treatment of Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics with applications to simple systems such as the ideal gas, paramagnetic solid, black body radiation, and electrons in metals. At the level of *Thermodynamics and Statistical Mechanics* by Sommerfeld.

#410. ADVANCED EXPERIMENTAL PHYSICS. Either term. Credit four hours. Prerequisite, Physics 310 (or 225-226 or 227-228), 303 or 318, and 322 or 325, or consent of the instructor. Limited to seniors except by special permission. Laboratory, T W or Th F 1:40-4:30. Lecture, M 1:40-3:00. Messrs. HARTMAN, BOWERS, BERKELMAN, CUYKENDALL, DEWIRE, LEE, McDANIEL, PARRATT, RHODIN, SIEGEL, SILCOX, SILSHEE, SILVERMAN, SPROULL, TAYLOR, WEBB, WOLGA, and WOODWARD.

Lectures and problems on selected topics in experimental concepts and techniques. About seventy different experiments are available in the laboratory among the subjects of mechanics, acoustics, optics, spectroscopy, electrical circuits, electronics and ionics, heat, X-rays, crystal structure, solid state physics, cosmic rays, and nuclear physics. During a term the student is expected to perform four to eight experiments, selected to meet his individual needs. Emphasis is placed on independent work.

431. INTRODUCTORY THEORETICAL PHYSICS. Fall term. Credit four hours. Primarily for graduate students in a science other than physics. Prerequisites, Physics 303 and 322, and co-registration in Mathematics 215 (preferably 415), or consent of the instructor. M W F S 9. Mr. SALPETER.

Classical mechanics and electromagnetic theory. At the level of *Theoretical Physics* by Blabb.

436. MODERN PHYSICS. Spring term. Credit four hours. Prerequisites, Physics 322 and Mathematics 214 or 222, or consent of the instructor. M W F 10. Mr. WOODWARD.

Selected topics in atomic, solid state, and nuclear physics; fundamental particles, atomic spectra, fundamentals of the quantum theory, the periodic table, X-rays, cosmic rays, properties of nuclei, and nuclear interactions. At the level of *Principles of Modern Physics* by French.

#443. ATOMIC PHYSICS AND INTRODUCTION TO QUANTUM MECHANICS. Fall

term. Credit four hours. Prerequisites, Physics 226 or 305, 318, and 323 or 325 or 431, and Mathematics 216 or co-registration in 421, or consent of the instructor. M W F 10 and M or T 2. Mr. SPOULL.

Difficulties with the classical interpretations of atomic properties and atomic structure are resolved in terms of quantum mechanics. At the level of *Principles of Modern Physics* by Leighton.

#444. NUCLEAR AND HIGH-ENERGY PARTICLE PHYSICS. Spring term. Credit four hours. Prerequisite, Physics 443 or consent of the instructor. M W F 10 and T 2. Mr. LEVINGER.

Behavior of high-energy particles and radiation; elementary particles and their characteristics; basic properties of nuclei; nuclear reactions; nuclear forces; cosmic rays; general symmetries and conservation laws of nature.

#454. ELECTRONIC PROPERTIES OF SOLIDS AND LIQUIDS. Spring term. Credit four hours. Prerequisite, Physics 443 or consent of the instructor. M W F 9, and one other hour each week to be arranged. Mr. SACK.

A semiquantitative introduction to the concepts of modern solid state physics, covering lattice structure, lattice defects, lattice vibrations, cohesive energy, elastic and inelastic properties, electron theory of metals and semiconductors, dielectric and magnetic properties. At the level of *Introduction to Solid State Physics* by Kittel.

490. INDEPENDENT STUDY IN PHYSICS. Either term. Credit one to four hours a term. Prerequisites, Physics 305 and 310, or equivalent, and consent of the instructor. Ordinarily limited to seniors. Hours to be arranged. Taught by any member of the professorial staff.

Individual project work. Reading or laboratory work in any branch of physics, commonly associated with the Physics 410 laboratory.

#491-492. HONORS SEMINAR. Throughout the year. Credit one hour each term. Prerequisite, consent of the student's major adviser (or of the instructor if the student is not majoring in physics). Ordinarily limited to seniors. M 3. Fall term, Mr. CARRUTHERS. Spring term, Mr. —.

Practice in the organization, oral presentation, and discussion of selected topics in physics.

500. INFORMAL GRADUATE LABORATORY. Either term. Credit one to three hours a term. Associated with the Physics 410-510 laboratory. Primarily for graduate students

who do not have the prerequisites for Physics 510. T W or Th F 1:40-4:30. Mr. HARTMAN and Staff.

510. ADVANCED EXPERIMENTAL PHYSICS. Either term. Credit three hours per term. Prerequisites, Physics 410 and 443, or the equivalent. At least one term of Physics 510 is ordinarily required for the first-year graduate student of physics. Laboratory, T W or Th F 1:40-4:30. Messrs. HARTMAN, BOWERS, BERKELMAN, CUYKENDALL, DeWIRE, LEE, McDANIEL, RHODIN, SIEGEL, SILCOX, SILSBEE, SILVERMAN, SPOULL, TAYLOR, WEBB, WOLGA, and WOODWARD.

About seventy different experiments are available among the subjects of mechanics, acoustics, optics, spectroscopy, electrical circuits, electronics and ionics, heat, X-rays, crystal structure, solid state, cosmic rays, and nuclear physics. During the term the student is expected to perform four to eight experiments, selected to meet his individual needs. Stress is laid on independent work on the part of the student.

514. X-RAYS: THE INTERMEDIATE ENERGY RANGE IN PHYSICS. Spring term. Credit three hours. Prerequisite, Physics 443 or consent of the instructor. Offered only if registration exceeds nine students. M W F 11. Mr. PARRATT.

X-rays provide study of physical phenomena in the intermediate energy range in atomic and solid state physics. Interactions between matter and energy in this range emphasize both particle and wave characteristics. Selected topics in production, absorption, scattering, diffraction, energy levels in atoms and solids, and in special tool-applications as class interest justifies and as time permits.

The four courses, Physics 571, 572, 573, and 574, are designed as a logical two-year sequence to cover basic graduate theoretical physics.

571. CLASSICAL MECHANICS. Fall term. Credit three hours. Prerequisites, Physics 318 or 431, and co-registration in Mathematics 415 or 423, or consent of the instructor. M W F 11. Messrs. MORRISON and HARRINGTON.

Lagrange's equations and application to particle motion and particle accelerators; small vibrations and linear vector spaces; continuum mechanics with application to wave motion and scattering; Hamilton's equations; introduction to variational methods for classical fields. At the level of *Classical Mechanics* by Goldstein.

572. QUANTUM MECHANICS. Either term. Credit four hours. Prerequisites, Physics 443, and at least co-registration in Mathematics 415

or 423, or consent of the instructor. T Th S 11 and S 12. Fall term, Mr. AMBEGAOKAR. Spring term, Mr. K. WILSON.

The wave function and its interpretation. The Schrödinger equation; oscillator, hydrogen atom; transformation theory (classical and quantum). Approximate methods of solution. Operators and matrices. Electron spin, the exclusion principle; scattering theory. At the level of *Quantum Mechanics* by Schiff or *Quantum Mechanics* by Merzbacher.

573. ELECTRODYNAMICS. Fall term. Credit four hours. Prerequisites, Physics 326 and 571 (or 431), and at least co-registration in Mathematics 415 or 423, or consent of the instructor. M W F S 9 and S 12. Mr. LEVINGER. Introductory potential theory; Maxwell's equations and their meaning; quasi-static problems; energy and momentum of the field; waves in space and in guides; radiation and scattering; special relativity. At the level of *Electrodynamics of Continuous Media* by Landau and Lifshitz, or *Classical Electrodynamics* by Jackson.

574. INTERMEDIATE QUANTUM MECHANICS. Spring term. Credit three hours. Prerequisites, Physics 572 and 573, and Mathematics 416 or 423, or consent of the instructor. M W F 9. Mr. KINOSHITA.

Discussion of various applications of quantum mechanics such as collision theory, theory of spectra of atoms and molecules, theory of solids, emission of radiation, relativistic quantum mechanics. At the level of *Quantum Mechanics of One and Two Electron Systems* by Bethe and Salpeter.

578. STATISTICAL MECHANICS AND KINETIC THEORY. Spring term. Credit three hours. Prerequisites, Physics 571 and 572, or consent of the instructor. T Th S 9. Mr. KRUMHANSL.

Statistical mechanics: general principles and applications to the properties of gases, liquids, crystals, and transport phenomena. At the level of *Statistical Physics* by Landau and Lifshitz.

635. SOLID STATE PHYSICS. Fall term. Credit three hours. Prerequisite, Physics 572 or consent of the instructor. M W F 11. Mr. SILSBEE.

An introduction to solid state physics including studies of crystal structure; mechanical, thermal, and electrical properties; magnetism; band structure; and selected topics.

636. ADVANCED SOLID STATE PHYSICS. Spring term. Credit three hours. Prerequisite, Physics 635 or consent of the instructor. T Th S 10. Mr. ENZ.

Selected advanced topics in modern theoretical and experimental solid state physics; band theory, group theoretical considerations, optical properties, phonon physics, transport problems, magnetic and low-temperature behavior of solids. Frequent reference to current literature and conference material.

645. INTRODUCTORY NUCLEAR PHYSICS. Fall term. Credit three hours. Prerequisite, Physics 572 or consent of the instructor. M W F 10. Mr. SILVERMAN.

Properties of nuclei, detection of particles, alpha decay, fission and thermonuclear reactions, gamma decay, beta decay, two-nucleon systems, nuclear models, nuclear reactions.

646. HIGH-ENERGY NUCLEAR PHYSICS. Spring term. Credit three hours. Prerequisite, Physics 645 or consent of the instructor. Offered only if registration exceeds nine students. M W F 11. Mr. BERKELMAN.

The physics of nucleons, mesons, and strange particles from an experimental point of view. High energy phenomena, as opposed to classical nuclear physics, will be discussed. At the level of *An Introduction to Elementary Particles* by Williams.

651. ADVANCED QUANTUM MECHANICS. Fall term. Credit three hours. Prerequisite, Physics 574 or consent of the instructor. T Th S 10. Mr. K. WILSON.

Relativistic wave equations, field theory, renormalization, problem of strong interactions, divergences of field theory. At the level of *Relativistic Quantum Field Theory* by S. Schweber.

654. THEORY OF MANY-PARTICLE SYSTEMS. Spring term. Credit three hours. Prerequisites, Physics 635 and 574, or consent of the instructor. M W F 12. Mr. AMBEGAOKAR.

The equilibrium and transport properties of macroscopic systems of many particles are studied at zero and finite temperatures. The thermodynamic Green's function techniques are developed and applied to a variety of systems. Probable topics for discussion are: the electron gas at high densities, the normal Fermi liquid, superconductivity, ferromagnetism, and the anharmonic crystal.

657. THEORY OF NUCLEI. Fall term. Credit three hours. Prerequisites, Physics 574 and 645, or consent of the instructor. Offered in alternate years and only if registration exceeds nine students. M W F 9. Mr. NELKIN.

Selected topics from the theory of nuclei, including nuclear forces, nuclear structure, and nuclear reactions.

662. THEORY OF HIGH-ENERGY PHENOMENA. Spring term. Credit three hours. Prerequisite, Physics 651 or consent of the instructor. Offered only if registration exceeds nine students. T Th S 11. Mr. CARRUTHERS.

Dispersion relations and applications to problems in the theory of strong interactions.

680. SEMINAR IN ADVANCED PHYSICS. Either term. Credit one to three hours a term. Upon sufficient demand, seminars will be arranged from time to time in topics not currently covered in regular courses. Typical seminar subjects are advanced solid-state

theory, applied group theory, plasma physics, general relativity theory, electronic circuitry, low-temperature physics, X-ray crystalline diffraction, magnetic resonance, etc.

690. INDEPENDENT STUDY IN PHYSICS.

Either term. Credit one to three hours a term. Special study in some branch of physics, either theoretical or experimental, under the direction of a member of the staff. Permission of the staff member under whose direction the work is to be done *must be obtained before registration.*

PSYCHOLOGY

Mr. J. J. GIBSON, *Chairman*; Messrs. L. BRAATEN, U. BRONFENBRENNER, Miss K. P. CROSS, Messrs. S. W. DAVIS, W. C. DILGER, J. E. HOCHBERG, W. W. LAMBERT, R. B. MACLEOD, L. MELTZER, F. ROSENBLATT, T. A. RYAN, Mrs. P. C. SMITH, Messrs. A. WOLF, and R. R. ZIMMERMANN.

Prerequisites for admission to the major are Psychology 101, 112, and 201. To be accepted for a major in psychology, a student must have a cumulative average of 75 in psychology courses, as well as approval of the Department's admissions committee. Applications for admission should be filed in the departmental office well in advance of course registration as it may be necessary to limit acceptances to the available laboratory capacities. Ordinarily prospective majors will obtain best preparation for work in psychology from basic courses in the following departments: anthropology, biology, chemistry, linguistics, literature, mathematics, philosophy, physics, sociology, statistics, and zoology.

Requirements for the major are:

(a) Psychology 305, 306, 307, and 490.

(b) Sixteen additional hours in the major at the 300 level or above.

With the permission of the adviser, the following courses may be credited toward fulfillment of major requirements: Child Development and Family Relationships 301, 315, 374; Conservation 190; Industrial and Labor Relations 311 (as alternate to Psychology 475); Interdepartmental Course 301-302; Rural Education 253, 254 (as alternate to Psychology 475), 261; Sociology 382, 481, 582, 681.

Prospective candidates for Honors are encouraged to file applications for provisional Honors status as early as possible but not later than the spring term of the junior year. Final admission will be determined on the basis of the student's record at the end of the junior year. For acceptance, the candidate must have a departmental grade average of 85 at this time.

Honors students are given the opportunity for experience in original investigation with the help of members of the faculty. They are encouraged to read in accordance with their own interests. Accordingly, they take an Honors seminar (491) and a thesis course (492). Honors work in psychology is based mainly upon a final comprehensive examination, a written thesis, and an oral defense of the thesis.

Students who wish to concentrate in social psychology may major in either psychology or sociology. In psychology, the student should meet the major requirement (b) (above) by taking the following courses: (a) Anthropology 301 or 312; (b) Sociology 441 or 442; (c) Psychology 341; (d) Sociology 382; (e) one of the following: Psychology 346, 571, 573, Sociology 481, 582, 681. Underclassmen may, if they wish, obtain an introduction to some facets of social psychology in any one of the following: Child Development and Family Relationships 115, Psychology 207, Sociology 261, 264, 281.

Students electing to meet the social science requirement in Distribution I may offer Psychology 101 plus an additional three or four hours. Prospective psychology majors who wish to begin work in Distribution II in their underclass years should consult with a major adviser in the Department of Psychology.

Participation in psychological experiments may be required as a part of course work when the instructor considers that it will be to the student's educational advantage.

101. INTRODUCTION TO PSYCHOLOGY. Either term. Credit three hours. Open to freshmen. Two lectures plus a one-hour demonstration-discussion section. Fall term: lectures, M (W) F 11, Mr. ZIMMERMANN, sections to be assigned; T Th (S) 9, Mr. —, sections to be assigned. Spring term: lectures M (W) F 11, Mr. —, sections to be assigned.

An introduction to the scientific study of behavior and experience, covering such topics as perception, motivation, emotion, learning, thinking, personality, and individual differences. Prerequisite to further work in the Department.

103. EDUCATIONAL PSYCHOLOGY. Spring term. Credit three hours. Prerequisite, an introductory course in psychology. M W F 9. Mr. —.

The major facts and principles of psychology bearing on educational practice and theory. Human learning and abilities will be stressed. Recent advances in the area of programmed learning and auto-instructional techniques will be discussed in the light of contemporary learning theory.

Each student will construct and test an auto-instructional program in his area of special interest.

106. PSYCHOLOGY IN BUSINESS AND INDUSTRY. Spring term. Credit three hours. Prerequisite, Psychology 101 or consent of instructor. M W F 11. Mrs. SMITH.

Applications of psychological methods in worker selection and training, conditions of efficient production, motivation in industrial performance, accident control, psychological aspects of marketing.

112. MODERN PSYCHOLOGY IN HISTORICAL PERSPECTIVE. Spring term. Credit three hours. Prerequisite, Psychology 101. M W F 12. 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, but recommended for those who plan to do advanced work in psychology, and required of psychology majors.

THE DEVELOPMENT OF HUMAN BEHAVIOR (Child Development and Family Relationships 115). Fall term. Credit three hours. T Th S 10. Mr. BRONFENBRENNER.

The aim is to contribute to the beginning student's knowledge and understanding of human beings through a study of their development from infancy to adulthood. Attention is focused on the role of biological factors, interpersonal relationships, social structure, and cultural values in changing behavior and shaping the individual. Special emphasis is given to the practical and social implications of existing knowledge.

201. INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY. Spring term. Credit four hours. Prerequisite, Psychology 101 or consent of instructor. Lectures, M W (F) 10; Laboratory, F 8-10:30, F 10:30-1, F 2-4:30 or S 10-12:30. Mr. HOCHBERG.

An analysis of current and classical research problems selected for their relevance to general theoretical issues and as illustrative of modern research methods in psychology. Specific topics will be chosen from the fields of perception, learning, motivation, personality theory, and the like. Provides an introduction to laboratory methods and statistical analysis prerequisite to many of the advanced courses in psychology.

207. INTRODUCTION TO PERSONALITY AND SOCIAL PSYCHOLOGY. Spring term. Credit four hours. Prerequisite, Psychology 101 or consent of instructor. M W (F) 10. Recitation, Th 8, 10, 12, 2, F 9, or 2. Messrs. LAMBERT, MELTZER, and WOLF.

Description and analysis of major consistencies in interpersonal behavior. Includes an over-all survey of principles and perspectives of the field, and a detailed analysis of several books.

THE SOCIAL PSYCHOLOGY OF GROUPS (Sociology 281). Credit three hours. Prerequisite, Psychology or Sociology 101. T Th (S) 10. Mr. MELTZER.

Analysis of interpersonal relationships which develop in such groupings as committees, clubs, work teams, friendships, neighborhoods, organizations, fraternities, and sororities. Case reports of known groups will be analyzed in terms of social psychological theory, method, and empirical findings. The techniques and findings of other methods of studying groups, such as social surveys, experimentation, and controlled observation, in both natural and laboratory settings, will be discussed and evaluated. Recent attempts to apply knowledge in this area to problems of industrial functioning, democratic leadership, and mental health will be critically reviewed.

305. BASIC PROCESSES: PERCEPTION. Fall term. Credit four hours. Prerequisite, Psychology 201. Lectures, M W 12. Laboratory, Th 1:40-4. Mr. HOCHBERG.

An account of the ways in which we register and apprehend the environment. The experimental study of sensory input, of psychophysical correspondence, of space, motion, objects, and events, and the relation of perceiving to everyday behaving and thinking.

306. BASIC PROCESSES: LEARNING. Spring term. Credit four hours. Prerequisite, Psychology 305. Lectures, M W (F) 9. Laboratory, T 1:40-4. Mr. ZIMMERMANN.

The fundamental conditions and principles of learning, both animal and human. The basic phenomena of operant conditioning, human verbal and motor learning, discrimination learning and serial 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. BASIC PROCESSES: MOTIVATION. Fall term. Credit four hours. Prerequisite, Psychology 306. W F 9. Laboratory, Th 1:40-4. Mr. RYAN.

Factors controlling the initiation, direction, and intensity of activity. Methods of research with emphasis upon experimental and statistical controls. Evaluation of evidence on major theories of motivation such as instinct theory, psychoanalysis, and behavioristic drive theory.

[311. FEELING AND EMOTION. Fall term. Credit four hours. Prerequisite, 9 hours in psychology or consent of instructor. M W F 10. Mr. ———.

The phenomena of feeling and emotion are examined in the context of both experimental and physiological research and of their expression in the visual arts, music, drama, literature, and religion. Designed for psychologists and for students in the humanistic disciplines with an interest in the psychological approach. Not offered in 1963-1964.]

313. PSYCHOLOGY OF LANGUAGE AND THINKING. Fall term. Credit four hours. Prerequisites, Psychology 101, and three additional hours in psychology, preferably 112 or 305. M W F 12. Mr. MACLEOD.

An approach to the psychological study of thinking through the analysis of the processes of communication. Material will be drawn from studies of linguistic development, from the pathology of language, from comparative linguistics, and from experimental studies of language and thinking. For students of philosophy, language, and literature as well as for students of psychology.

BRAIN MECHANISMS AND MODELS. (Interdepartmental Course 301-302.) Throughout the year. Credit four hours a term. Prerequisites, calculus, graduate or advanced undergraduate standing, and consent of instructor. Lecture, W 2, with additional hours to be arranged. Mr. ROSENBLATT, with assistance of Mr. Block and guest lecturers.

323. PHYSIOLOGICAL PSYCHOLOGY. Spring term. Credit four hours. Prerequisites, Psychology 101, one year of biology or zoology, and three further hours of psychology. T Th S 9. Mr. ———.

A survey of the physiological mechanisms known to be important in sensory-motor, motivational, and adaptive behavior.

324. PSYCHOBIOLOGY. Spring term. Credit four hours. Prerequisites, Psychology 101, Zoology 201 or equivalent, and upperclass standing. T Th S 10. Mr. ———.

The principal biological mechanisms of behavior with special reference to man. Neurophysiology, endocrinology, and conditioning in relation to the problem of human behavior.

326. COMPARATIVE PSYCHOLOGY. Fall term. Credit four hours. Prerequisites, 6 hours of psychology beyond the 100 level. Some knowledge of physiology or physiological psychology is desirable. T Th 11-12:30. Mr. ———.

An attempt to uncover the evolutionary and ecological processes at work molding the behavior of animals. Principles will be advanced and used to design representative types of behavior in hypothetical animals. Detailed consideration will then be given to the analysis of the behavior of existing insects, birds, and mammals. Psychological and ethological theories of animal behavior will be discussed, especially the views of these theories toward the evolution of behavior.

331. METHODS OF INDUSTRIAL SELECTION AND PLACEMENT. Fall term. Credit four hours. Prerequisites, Psychology 101 and 201. M W F 11. Mrs. SMITH.

Techniques of constructing and evaluating selection and placement measures, including development of criteria of performance, analysis of reliability, methods of item analysis, validation of tests, interviews, and personal history data. Class members will construct and validate a specific test during the term.

332. WORK FATIGUE, AND EFFICIENCY. Spring term. Credit four hours. Prerequisite, Psychology 101. M W F 9. Mrs. SMITH.

A survey of the external and internal factors which affect the efficiency, speed, and accuracy

of human work. Consideration will be given to sedentary or "mental" work as well as to physical work, in relation to fatigue, monotony, rest, sleep, and the effects of noise, light, temperature, incentives, and social factors.

336. PSYCHOLOGICAL PROBLEMS OF ADVERTISING AND MARKET RESEARCH. Fall term. Credit four hours. Prerequisite, Psychology 201 or consent of instructor. T 2-4, plus one hour to be arranged. Mrs. SMITH.

Applications of psychological tools and knowledge in the study of advertising and of consumer motivation.

341. SOCIAL PSYCHOLOGY. Fall term. Credit four hours. Prerequisites, 3 hours of psychology and 3 hours of sociology or 3 hours of anthropology and a course in statistics, or consent of instructor. M W F 10. Mr. LAMBERT.

Analysis of the history, concepts, methods, and theories used to describe and conceptualize some recurrent processes in social behavior. The processes of socialization, attitude change, and communication will be given special emphasis. Field observation methods, content analysis, attitude measurement and scaling, measures of meaning, and cross-cultural method will be discussed and exemplified. Students will have the opportunity to obtain some experimental laboratory experience. The work of some modern essayists in the field will be critically discussed.

This course constitutes one half of a full-year sequence in social psychology. The other half, which is listed as Sociology 382, may be counted toward the major in psychology. These courses may be taken separately.

SOCIAL PSYCHOLOGY (Sociology 382). Spring term. Credit four hours. Prerequisites, 3 hours of psychology and 3 hours of sociology, or anthropology, and a course in statistics, or consent of instructor. T Th (S) 10. Mr. MELTZER.

This course constitutes one half of a full-year sequence in social psychology. The other half, which is listed as Psychology 341, may be counted toward the major in sociology. These courses may be taken separately.

346. THEORIES OF PERSONALITY. Spring term. Credit four hours. Prerequisite, Psychology 101 or consent of instructor. M W F 12. 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 em-

pirical 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 production will be considered. The emphasis will be mainly upon "normal" personality.

401. PSYCHOLOGICAL TESTS: I. Fall term. Credit four hours. Prerequisites, 6 hours in psychology, including 201 or a course in elementary statistics. T Th S 11. Mr. ———.

402. PSYCHOLOGICAL TESTS: II. Spring term. Credit four hours. Prerequisites, 6 hours in psychology, including 201 or a course in elementary statistics. T Th S 11. Mr. ———.

405. ABNORMAL PSYCHOLOGY. Fall term. Credit four hours. Prerequisite, nine hours of psychology or consent of instructor. T Th S 10. Mr. ———.

Examination of the basic concepts from biology, psychology, and sociology currently employed in the analysis and interpretation of abnormal behavior.

410. INDIVIDUAL DIFFERENCES. Fall term. Credit four hours. Prerequisite, Psychology 401 or its equivalent. Course 401 may be taken concurrently. T Th (S) 9. Mr. ———.

[411. PROCEDURES IN CLINICAL PSYCHOLOGY. Spring term. Credit four hours. Prerequisites, Psychology 401 and consent of instructor. Primarily for seniors and graduate students. M 2-4, and conferences to be arranged. Mr. ———. Not given in 1963-1964.]

[413. PRACTICUM AND SEMINAR IN PSYCHOLOGICAL TESTING. Either term. Credit four hours. Prerequisite, Psychology 401 or 402. All students must have consent of instructor. Hours to be arranged. Mr. ———. Not given in 1963-1964.]

[426. EXPERIMENTAL PSYCHOPATHOLOGY. Either term. Credit four hours. Prerequisites, psychology or biology major and upperclass standing. Mr. ———. Not given in 1963-1964.

The application of experimental methods to the behavior disorders; analysis of contemporary theories of behavior pathology; laboratory work.]

452. INDIVIDUAL AND SOCIETY IN THE SOVIET UNION. Spring term. Credit four hours. Prerequisite, consent of instructor. Will be conducted as a seminar. Hours to be arranged. Mr. BRONFENBRENNER. Offered in 1963-1964 and alternate years.

Examination of attitudes, modes of thought, and patterns of behavior in various segments of Soviet society. Special attention is focused

on the role of the collective in molding and maintaining attitudes, and in the implication of soviet psychological orientations in our dealings with East and West.

SEMINAR: THE INDIVIDUAL AND THE FAMILY IN CHINESE SOCIETY (Anthropology 441). Fall term. Credit four hours. Prerequisites, Anthropology 312 or 343, Psychology 207 or 341, Sociology 382, or consent of instructor. M W F 10. Mr. WOLF.

A microscopic view of Chinese society intended to introduce the student to the study of personal relations within the Chinese family, Chinese socialization practices, and the expression of such forms of behavior as aggression and responsibility in traditional and contemporary China.

[**EXPERIMENTAL GROUP DYNAMICS** (Sociology 481). Not given in 1963-1964.]

475. STATISTICAL METHODS IN PSYCHOLOGY. Fall term. Credit four hours. Prerequisites, 101, 201, and consent of the instructor. M W F 2. Mr. RYAN.

An analysis of the methods for treating various kinds of psychological data. Tests of significance, and analysis of variance, in their application to psychological research. A sequel to this course is Psychology 542.

476. RESEARCH METHODS IN PSYCHOLOGY—EXPERIMENTAL. Spring term. Credit four hours. Consent of instructor required. W 2-4. Laboratory hours to be arranged. Mr. HOCHBERG and Mrs. SMITH.

An advanced course in experimental psychology, stressing the methods of planning and executing experiments. The group will plan and conduct experiments on selected problems. Recommended for students who plan to do graduate work in psychology and for major students in related sciences.

477. RESEARCH METHODS IN PSYCHOLOGY—INDUSTRIAL. Fall term. Credit four hours. Prerequisite, consent of instructor. F 2. Laboratory hours to be arranged. Mrs. SMITH and Mr. HOCHBERG.

An introduction to research techniques in industrial psychology. Projects in local factories and business institutions and in the laboratory are conducted as exercises in such areas as test construction, analyses of reliability and validity of test and interview methods, studies of morale, learning, methods, fatigue, and job analysis programs.

486. SUPERVISED STUDY. Either term. Credit two hours. The Staff.

487. SUPERVISED STUDY. Either term. Credit four hours. The Staff.

490. SENIOR SEMINAR. Spring term. Credit four hours. Prerequisites, 307 and senior standing. Required of all students majoring in psychology except those in Honors. T 2-4. Mr. ———.

An examination of the problems and methods of general and experimental psychology in order to organize the specific knowledge gained in other courses. Class discussions will serve as a framework for the student's individual review and reading. The course will culminate in an examination designed to test the student's knowledge of the whole field.

SEMINARS FOR HONORS CANDIDATES

491. HONORS SEMINAR AND THESIS. Fall term, senior year. Credit four hours. Time to be arranged. Mr. MacLEOD.

492. HONORS THESIS. Spring term, senior year. Credit four hours. Time to be arranged.

This will represent an investigation, under the supervision of a member of the staff, of a problem in any of the major fields of psychological research. Candidates will for the most part work independently but may, from time to time, be called together for progress reports.

GRADUATE SEMINARS

Primarily for graduate students, but with the consent of the instructor may be taken by qualified undergraduates. Approximately five seminars will be offered each term, the selection to be determined by the needs of the students. During the preregistration period, the list of seminars for the following term will be posted, specifying instructors, topics to be covered, and hours of meeting.

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. THINKING. Either term. Credit four hours.

521-522. **PSYCHOBIOLOGY.** Either term. Credit four hours.

523-524. **PHYSIOLOGICAL 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 OF SOCIAL ANALYSIS.** 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.

571-572. **PROSEMINAR IN SOCIAL PSYCHOLOGY.** Either term. Credit four hours.

PROSEMINAR IN SOCIAL PSYCHOLOGY. (See Sociology 582.)

573-574. **SOCIAL PSYCHOLOGY.** Either term. Credit four hours.

SEMINAR IN SOCIAL PSYCHOLOGY. (See Sociology 681.)

575-576. **PERSONALITY.** Either term. Credit four hours.

581-582. **INDUSTRIAL PSYCHOLOGY.** Either term. Credit four hours.

591-592. **EDUCATIONAL PSYCHOLOGY.** Either term. Credit four hours.

595-596. **THE TEACHING OF PSYCHOLOGY.** Either term. Credit four hours.

SOCIOLOGY

MT. GORDON F. STREIB, *Chairman*; MRS. LOIS DEAN, MESSRS. WILLIAM DELANY, ALLAN G. FELDT, MRS. ROSE K. GOLDSEN, DONALD P. HAYES, MESSRS. WILLIAM W. LAMBERT, ROBERT M. MARSH, ROBERT MCGINNIS, LEO MELTZER, GEORGE C. MYERS, J. MAYONE STYCOS, WAYNE E. THOMPSON, ROBIN WILLIAMS, JR.

There are three alternative majors available: (1) sociology; (2) sociology with a concentration in social psychology; (3) social relations.

SOCIOLOGY:

For a major in sociology the following courses must be completed: (a) 321, 330, 382 (or Psychology 341), 402, and 441; (b) twelve hours of electives at the 300 level or higher, including at least one course at the 400 level, four hours of which must be in sociology. Departmentally approved courses in other fields may be elected in special consultation with the major adviser. Majors will be required to pass a comprehensive examination in sociology.

Prerequisites for admission to the major in sociology: Sociology 101 and any one of the 200-level courses. In addition, the student must offer an approved course in statistics to be taken not later than the end of the junior year, but preferably as a sophomore. For admission to the major a student must have an average of at least 75 in the prerequisite departmental courses and must be accepted by the departmental admissions committee. Ordinarily, students should apply for admission to major no later than two weeks before the time of preregistration in the spring term.

Prospective majors are urged to take a year of college mathematics.

SOCIOLOGY WITH A CONCENTRATION IN SOCIAL PSYCHOLOGY:

In cooperation with the Department of Psychology, a concentration in social psychology is available. Students who wish to specialize in social psychology may major in either field. In sociology, the student who concentrates in social psychology must meet the prerequisites for a major in sociology (offering Psychology 201 to meet the statistics prerequisite). He must meet major requirements (a), and he also must meet requirements (b) by offering the following: Psychology 341 and one of the following: Anthropology 312; Sociology 481, 582, 681; Psychology 346, 571, 573, 574. In addition, the student is expected to take one course in experimental psychology (Psychology 305, 306, or 307).

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.

(1) *Prerequisites to the major:* The candidate must apply to the Committee an Admission to the Social Relations Major, offering the following:

a. Either Anthropology 101 or Sociology 101.

b. Either Psychology 101 or Psychology 207 (Introduction to Personality and Social Psychology),

c. Either Industrial and Labor Relations 210 or Psychology 201 (the latter is recommended for the student who intends to take advanced courses in psychology).

(2) *The major:* The major calls for a minimum of 36 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 510).

c. At least one course in theory which is related to social relations.

d. The senior seminar in social relations (Sociology 495, 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 Honors program in social relations, should apply to the chairman of the Social Relations Committee, Robin M. Williams, Jr.

For admission to Honors Programs in social psychology and sociology students should file application on a form obtainable in the departmental office, not later than November 1 of their junior year. Honors candidates must have a general average of at least 80 and an average in departmental courses of at least 85, or show exceptional promise.

Specialized instruction is offered in Sociology 491-492, *Selected Topics in Sociology*. These courses are open to a limited number of upperclass majors only. Consent of the instructor is required.

Seminars may be taken by qualified undergraduates with the consent of the instructor, except as otherwise noted in course listings.

The social science requirement in sociology under Distribution I may be satisfied with Sociology 101, and an additional semester course at the 200 or 300 level.

101. MAN AND SOCIETY. Either term. Credit three hours. Fall term: lectures, T Th (S) 10, M W (F) 11. Spring term: lectures, M W (F) 10. Discussion sections to be arranged. Messrs. HAYES, THOMPSON and staff.

An introduction to the theory and methods of sociology. Major areas of the field will be presented, including such topics as social institutions, social stratification, intergroup relations, population and ecology, collective behavior, and power and politics. Emphasis will be placed on contemporary research within these areas. Students will be required to develop and conduct one or more empirical research exercises.

262. PUBLIC OPINION. Spring term. Credit three hours. M W F 11. Mrs. GOLDSEN.

Factors determining the character of public opinion on the basis of relevant social, psychological, and political science knowledge. The nature, development, and control of public opinion in terms of opinion formation and change and the relation of public opinion to social and political action. Special emphasis is given to the techniques of propaganda, the functioning of pressure groups, and the role

of the communication media of radio, television, press, and motion pictures in determining public opinion.

264. INTERGROUP RELATIONS: PREJUDICE, DISCRIMINATION, AND CONFLICT. Spring term. Credit three hours. Prerequisite, Sociology 101 or consent of the instructor. T Th S 10. Mr. WILLIAMS.

An evaluation of relations among ethnic, racial, and religious groups in terms of the social psychology of intergroup hostility and conflict and the position and role of these groups in the larger community. Prejudice and discrimination will be analyzed for their social, psychological, political, and economic causes and effects. Social and political movements based on intolerance and efforts to resolve intergroup conflict will be examined, with special attention to current developments resulting from the desegregation of public schools.

281. THE SOCIAL PSYCHOLOGY OF GROUPS. Fall term. Credit three hours. Prerequisite, a course in psychology or sociology. T Th (S) 10. Mr. MELTZER. Offered in 1963-1964 and alternate years.

Analysis of interpersonal relationships which develop in such groupings as committees, clubs, work teams, friendships, neighborhoods, organizations, fraternities, and sororities. Case reports of known groups will be analyzed in terms of social psychological theory, method, and empirical findings. The techniques and findings of other methods of studying groups, such as social surveys, experimentation, and controlled observation, in both natural and laboratory settings, will be discussed and evaluated. Recent attempts to apply knowledge in this area to problems of industrial functioning, democratic leadership, and mental health, will be critically reviewed.

INTRODUCTION TO PERSONALITY AND SOCIAL PSYCHOLOGY (Psychology 207). Spring term. Credit four hours. Prerequisite, Psychology 101 or consent of the instructor. M W (F) 10; recitation Th 8, 10, 12, 2. F 9, 10, 2. Messrs. LAMBERT, MELTZER, and WOLF.

321. TECHNIQUES OF SOCIOLOGICAL RESEARCH. Fall term. Credit four hours. Prerequisites, Sociology 101 and a course in statistics, or consent of the instructor. M W F 2. Mr. MCGINNIS.

Strategies in the framing and testing of sociological hypotheses are considered. Data sources and quantitative test procedures are evaluated.

330. POPULATION PROBLEMS. Fall term. Credit four hours. M W 3-4, and one hour to be arranged. 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.

331. AMERICAN COMMUNITIES. Fall term. Credit four hours. Open to upperclassmen majoring in the social sciences and to graduate students or by consent of the instructor. M W F 10. Mr. THOMPSON. Offered in 1963-1964 and in alternate years.

An examination of the sociological aspects of contemporary urban communities. The structure of social class, status, and power, and the interrelationship among institutions within the community. Community integration and the relationship of community structure to personal identity, and participation.

332. INTRODUCTION TO HUMAN ECOLOGY. Spring term. Credit four hours. M W F 12. Mr. FELDT.

An examination of the form and development of the human community with respect

to spatial, temporal, and functional patterns of organization. Demographic, environmental, and technological characteristics are treated as parameters relevant to the ecological structure of the community.

343. THE FAMILY. Fall term. Credit four hours. Prerequisite, Sociology 101, or consent of the instructor. M W F 9. Mr. STREIB.

The family in various cultures but particularly in American society, from the standpoint of its organization and relation to other social institutions. Emphasis is placed upon the family's major social functions—reproduction, maintenance, socialization, and the conferring of status—and upon the cyclical features of the family—courtship, marriage, parenthood, and dissolution.

344. RELIGION IN WESTERN SOCIETY. Spring term. Credit four hours. Prerequisite, Sociology 101, or consent of the instructor. M W F 9. Mr. STREIB.

The interrelationship of culture, society, and religion. Religion and social stratification, religion and economic and political institutions, social change and religion. The major emphasis will be upon American society and American religious institutions.

345. CLASS, STATUS, AND POWER. Fall term. Credit four hours. Prerequisite, Sociology 101 or consent of the instructor. M W F 11. Mr. DELANY. Offered in 1963-1964 and alternate years.

A study of theories and research dealing with the nature, conditions, and consequences of systems of socio-economic inequality in, mainly, American communities and society. Focuses upon status, occupational, income, and power hierarchies, patterns of vertical social mobility, interrelationships of the hierarchies and their changes since the industrial revolution. Implications of socio-economic stratification for politics and government, individual styles of life, life chances and the general integration, effectiveness and stability of societies.

346. BUREAUCRACY IN MODERN SOCIETY. Spring term. Credit four hours. Prerequisite, Sociology 101 or consent of the instructor. M W F 10. Mr. DELANY.

Study of the nature, conditions for growth, and consequences of bureaucratic organizations in modern Western societies, especially the United States. Structure and operation of organizations having diverse functions in modern society such as business corporations, trade unions, the military, political-interest groups and parties, hospitals and government agencies. Implications of bureaucracy for ef-

fective organizational functioning, for the organizational members, their families, the communities in which they live, and, especially, for conflicts in values within the individualistic, democratic, and humane traditions of American society.

[347. **POLITICAL SOCIOLOGY.** Fall term. Credit four hours. Open to upperclassmen majoring in the social sciences and to graduate students or by consent of the instructor. M W F 10. Mr. THOMPSON. Offered in alternate years. Not offered in 1963-1964.

An examination of political institutions as sociological phenomena with emphasis on the empirical study of political behavior. Cultural and social factors associated with political structure, political attitudes, and political behavior. Political decision making as a sociological process.]

349. **COMPARATIVE SOCIAL STRUCTURE.** Fall term. Credit four hours. Prerequisite, Sociology 101. M W F 2. Mr. MARSH. Offered in 1963-1964 and alternate years.

Structural-functional analysis of the constant and variable features of large-scale industrial and pre-industrial societies, such as China, Japan, the Soviet Union, and the United States. The universality of sociological propositions, originally tested with American data, in the light of data from other societies.

362. **SOCIETY AND ECONOMIC DEVELOPMENT.** Spring term. Credit four hours. Prerequisite, Sociology 101 or consent of instructor. M W F 9. Mr. DELANY.

Applies sociological concepts and theories of historical development of Western industrial societies to selected problems of "modernization" in the contemporary world. Locates patterns and variations in relationships between economic development of societies and changes in their (1) population and ecology, (2) family and kinship systems, (3) community and administrative organizations, (4) stratification, (5) political systems, (6) communications media and, (7) institutionalized ideologies.

363. **MASS SOCIETY, POLITICS, AND CULTURE.** Fall term. Credit four hours. Prerequisite, Sociology 101 or consent of the instructor. M W F 10. Mr. DELANY.

Within the general study of collective behavior the focus is upon a critical examination of theories of "mass society" and "mass culture" advanced by such writers as Ortega y Gasset, W. Lippmann, C. W. Mills, D. MacDonal, K. Mannheim, and W. Kornhauser in light of evidence from social research. The nature of "mass society" in contrast to other forms, its historical conditions

and its consequences for, especially, politics, government, and both the fine and popular arts will be considered.

382. **SOCIAL PSYCHOLOGY.** Spring term. Credit four hours. T Th (S) 10. Mr. MELTZER. Prerequisite, 3 hours of psychology and 3 hours of sociology or 3 hours of anthropology, and a course in statistics, or consent of instructor.

Analysis of the ways in which people react to one another. The processes of interpersonal influence, conformity to norms and roles, leadership, hostility, and attraction will be given special emphasis. Experimental methods, controlled observation of groups in laboratory settings, and sociometric methods will be critically discussed and exemplified. Students will have opportunity to obtain some experimental laboratory experience.

This course constitutes one half of a full-year sequence in social psychology. The other half, which is listed as Psychology 341, may be counted toward the major in sociology. These courses may be taken separately.

SOCIAL PSYCHOLOGY (Psychology 341). Fall term. Credit four hours. Prerequisites, three hours of psychology and three hours of sociology or three hours of anthropology, and a course in statistics or consent of the instructor. M W F 10. Mr. LAMBERT.

This course constitutes one half of a full-year sequence in social psychology. The other half, which is listed as Sociology 382, may be counted toward the major in sociology. These courses may be taken separately.

THEORIES OF PERSONALITY. (Psychology 346.) Spring term. Credit four hours. Prerequisite, Psychology 101 or consent of instructor. M W F 12. Mr. LAMBERT.

402. **SOCIAL THEORY.** Spring term. Credit four hours. Open to majors and graduate students. M W 2-3:30. Mr. MYERS.

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.

[404. **STUDIES IN SOCIOLOGY.** Spring term. Credit four hours. T Th 3. Mr. ——. Not offered in 1963-1964.

A limited number of problems in sociology that have received consistent theoretical and research attention are explored. An attempt will be made to review contemporary sociology. Analysis and interpretation of selected literature in the field.]

412. MATHEMATICAL SOCIOLOGY. Spring term. Credit four hours. Prerequisites, Sociology 101 and one year of college mathematics, or consent of the instructor. Th 2-4. 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. MEASUREMENT THEORY IN SOCIAL ANALYSIS. Fall term. Credit four hours. Prerequisites, Sociology 321 and an introductory course in college mathematics or statistics or consent of the instructor. M W 3-4:30. Mr. McGINNIS.

Elementary measurement theory is examined as a basis for constructing social variables. Guttman's ordinal scale theory is considered in detail. Equal-interval measurement techniques of psychophysics are applied to other concepts such as social perception, status, and anomie. Factor analysis is evaluated as a tool of theory and research. Not offered in 1963-1964.]

423-424. ANALYSIS OF SURVEY DATA. Throughout the year. Credit four hours a term. Open to upperclass majors and graduate students with the consent of the instructor. Th 4-6. Mrs. GOLDBEN.

In the first semester, instruction and practice are given in all steps of survey analysis, using materials from current studies conducted in the Department. Treatment of editing, classifying, and coding data. Review and application of simple statistical techniques. Scales, scores, and other composite indexes are developed and used in analysis. Continuous emphasis is given to adequacy of research design and logic of analytical inference. All exercises are written by the students as research reports. The second semester emphasizes the equivalent problems which arise in analyzing qualitative research materials; unstructured interviews, content analysis of documents, life history materials, and the like.

425. TECHNIQUES OF DEMOGRAPHIC RESEARCH. Fall term. Credit four hours. Prerequisite, Sociology 330 or consent of the instructor. T Th S 11. Mr. MYERS.

Methods of processing and analyzing demographic data. Measures of mortality, fertility, and migration as applied to census and vital statistics data will be analyzed, and the more general applications of demographic techniques to other classes of data illustrated.

432. REGIONAL POPULATION ANALYSIS.

Spring term. Credit four hours. Prerequisite, Sociology 330 or consent of the instructor. T Th S 11. Mr. MYERS.

Research application of basic demographic techniques to selected regions of the world, particularly the economically lesser-developed regions. Attention is directed to field survey techniques, including sampling and questionnaire construction, as well as formal demographic analysis. Students may work on selected research projects for the semester.

433. INTERNATIONAL URBANIZATION. Fall term. Credit four hours. M W F 12. Mr. FELDT.

An examination and appraisal of the growth and development of urban communities in developing nations. The structure and composition of such communities and their relationship to a regional economy are compared with similar phenomena in the Western world.

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. 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. 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. 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 organization.

444. SOCIAL STRATIFICATION PROSEMINAR. Spring term. Credit four hours. T 2-4. Mr. MARSH.

An attempt to integrate Functionalist and Marxian theories of social stratification with each other and with recent research, especially comparative cross-societal research.

[481. EXPERIMENTAL GROUP DYNAMICS. Fall term. Credit four hours. Prerequisites, a course in statistics, and a course in social or experimental psychology, or consent of the instructor. Open to upperclassmen and

graduate students. T Th 10. Laboratory, M 3-5. Mr. MELTZER. Offered in alternate years; not offered in 1963-1964.

An introduction to the advanced literature of the field, and supervised research experience. Students will read and discuss technical reports of experimental studies of social interaction, as well as pertinent theoretical articles. In laboratory, students will replicate classic studies and then will complete an independent project.]

491. SELECTED TOPICS IN SOCIOLOGY. Fall term. Credit four hours. Open only to majors. Hours to be arranged. Staff.

492. SELECTED TOPICS IN SOCIOLOGY. Spring term. Credit four hours. Open only to majors. Hours to be arranged. Staff.

493. HONORS SEMINAR. Fall term. Credit four hours. Prerequisite, acceptance as candidate for Honors. Hours to be arranged. Mrs. GOLDSSEN and Staff.

494. HONORS SEMINAR. Spring term. Credit four hours. Prerequisite, acceptance as candidate for Honors. Hours to be arranged. Mrs. GOLDSSEN and Staff.

495. SOCIAL RELATIONS SEMINAR. Fall term. Credit four hours. Open only to seniors majoring in social relations. Hours to be arranged. Mr. ———.

511. THEORY OF CULTURE AND SOCIAL ORGANIZATION. Fall term. Credit four hours. Prerequisite, Sociology 402 or equivalent. T Th S 11. Mr. WILLIAMS.

Analysis of recent conceptual development in theories of cultural and social systems. Special attention will be given to the work of Talcott Parsons and associates, with comparative study of alternative conceptual schemes.

[512. HISTORY OF SOCIOLOGICAL THEORY. Spring term. Credit four hours. Open to majors and graduate students. T Th 2-3:30. Mr. MARSH. Not offered in 1963-1964.

Consideration of the works of leading sociological theorists and major trends of development in sociological thought, with particular reference to the nineteenth and twentieth centuries. The classical works by Spencer, Marx, Weber, Durkheim, Pareto, Simmel, and others will be read. Emphasis will be upon extracting testable propositions which are viable in terms of present-day theory.]

513. DEMOGRAPHIC THEORY. Fall term. Credit four hours. Open to majors and graduate students. T 3-5. Mr. MYERS.

Deals with theory construction, hypothesis derivation, and the integration of theory and reach in demography. Although emphasis is placed on contemporary theories, earlier formulations beginning with Malthus also are examined insofar as they deal with fertility, mortality, migration, and the people-resource question.

[514. PROSEMINAR IN COMPARATIVE BUREAUCRACY. Spring term. Credit four hours. Hours to be arranged. Mr. DELANY. Not offered in 1963-1964.]

522. METHODOLOGY. Spring term. Credit four hours. Prerequisites, an introductory methods and statistics course or consent of the instructor. F 2-4. Mr. MCGINNIS.

Science is considered as a model process, both axiomatic and experimental. Sociology is evaluated as a partial representation of the model. The logical status of sociological knowledge is emphasized.

541. SOCIAL ORGANIZATION AND CHANGE. Fall term. Credit four hours. T Th 2-3:30. Mr. MARSH.

An analysis of major problems in theory and research in the general field of social organization and change. The subject will be studied from the standpoint of the nature and size of the social system (small groups, communities, large-scale organizations, societies) and also in terms of the social processes and properties of the systems, such as integration, authority, conformity, and deviance.

582. PROSEMINAR IN SOCIAL PSYCHOLOGY. Spring term. Credit four hours. Hours to be arranged. Mr. LAMBERT.

PROSEMINAR IN SOCIAL PSYCHOLOGY. (Psychology 571-572.)

611. SEMINAR: THEORY AND RESEARCH. Fall term. Credit four hours. Hours to be arranged. Mr. ———.

612. SEMINAR: RESEARCH ON HUMAN FERTILITY. Fall term. Credit four hours. Hours to be arranged. Mr. SRYCOS.

Critical analysis of recent research investigations dealing with social and psychological factors affecting human fertility.

613. SEMINAR: THEORY AND RESEARCH. Fall term. Credit four hours. Hours to be arranged. Mr. ———.

614. SEMINAR: THEORY AND RESEARCH IN CHINESE SOCIAL STRUCTURE. Spring term. Credit four hours. Hours to be arranged. Mr. MARSH.

615-616. **DIRECTED RESEARCH.** Either term. Credit to be arranged. Hours to be arranged. Staff.

681. **SEMINAR IN SOCIAL PSYCHOLOGY.**

Fall term. Credit four hours. Hours to be arranged. Mr. LAMBERT.

SEMINAR IN SOCIAL PSYCHOLOGY. (Psychology 573-574.)

SPEECH AND DRAMA

Mr. ———, *Acting Chairman*; MESSRS. H. D. ALBRIGHT, G. J. CANTER, HARRY CAPLAN, M. A. CARLSON, JOSEPH GOLDEN, G. A. MCCALMON, E. C. NUTTALL, T. M. SCHEIDEL, W. H. STANTON, J. F. WILSON.

Students may elect a major with emphasis on either speech or drama. All majors must complete the following underclass courses: 233, either 103-104 or 105-106, and one course from 205, 234, 285. Twenty additional hours of upperclass work in the Department are required of all majors.

Courses to be completed outside the Department but as an integral part of the major are as follows. Majors concentrating in speech must complete at least four hours of upperclass course work in linguistics or psychology of language and thinking. In addition each major in speech must elect at least eight hours of approved, upperclass work in psychology, history, or literature. Majors concentrating in drama must elect at least twelve hours of approved upperclass work in dramatic literature, history of art, sociology, anthropology, or psychology.

Students wishing to graduate with Honors in speech and drama should make application to the Chairman at the beginning of their junior year. For provisional acceptance as a candidate for Honors, a student must have chosen speech or drama as his major, have a cumulative average of 80 for all work done in the College, and no grades below 80 for courses in speech and drama.

The following course sequences in speech and drama may be offered in satisfaction of Distribution I requirements: 103-104, 105-106.

For satisfaction of Distribution II requirements the Department suggests as representative the following paired or sequential courses: 233-234, 273-373, 283-285, 301-302, 341-345, 375-376, 391-392, 401 and either 402 or 413. Representative four-course combinations are: 233-234-341-345, 273-373-391-392, 283-285-381 and 385 or 386, 301-302-401 and 402 or 413.

Students who plan to teach speech and drama in the secondary schools should secure from the departmental office the schedule of courses approved for provisional certification in New York State. For those planning to teach English the Department recommends Courses 233, 281, 283, 285, 301.

103-104. PUBLIC ADDRESS AND DRAMA AS PERFORMING ARTS. Throughout the year. Credit three hours a term. First term prerequisite to the second. M W F 11. First term, Mr. WILSON. Second term, Mr. CARLSON.

An introduction to oral and dramatic communication through intensive practice in public address and acting. The work of the course is developed through a series of performance units, each related to a specific cluster of principles governing the projection of meaning, rhetorical or dramatic. The student is required to generalize from both immediate experience and theoretical analysis and to deal ultimately with the bases of criticism in rhetorical and dramatic arts.

The first term explores problems of audience analysis, discovery, and arrangement of aurally communicable ideas, language choice, and delivery. The second begins with the reading of imaginative material from the printed page, covers the adaptation of speech and ac-

tion to the special requirements of the stage, and focuses on characterization in projects of increasing complexity and scope.

105-106. PRINCIPLES OF SPEECH AND THEATRE ART. Throughout the year. Credit three hours a term. First term prerequisite to the second. T Th S 10. First term, MESSRS. NUTTALL and SCHEIDEL. Second term, Mr. GOLDEN.

An introduction to oral communication exploring the limitations and potentialities of speech, particularly in popular discourse and the drama. The first term examines how and why man speaks, with special attention to utterance and rhetorical composition as social instruments. The second term enlarges the scope of the basic material, developing speech and action as essential elements in dramatic communication and introducing such additional considerations as scenic design and space relationships within the playhouse.

Not a performance course; lectures, readings, discussions, and demonstrations.

300. INDEPENDENT STUDY IN SPEECH AND DRAMA. Either term. Credit four hours. Open to upperclassmen prepared for independent study in speech or drama. Permission to register must be secured through the departmental office. Members of the Department.

Individual study of special topics. Students who plan to teach speech and drama are expected to complete certain advanced work in teaching methods or hearing problems through independent study under supervision of an appropriate adviser.

SPEECH

I. PUBLIC SPEAKING AND RHETORIC

201. PUBLIC SPEAKING. Either term. Credit three hours. Not open to students who have taken Speech and Drama 103. Open to others who have satisfied the introductory English requirements of their respective colleges. M W F 8, 9, 10, 11, 12; T Th S 9, 10, 11. Mr. WILSON and Staff.

Evening examinations will be given November 7 and March 19.

Designed to help the student communicate his ideas and convictions effectively in oral discourse. Study of basic principles of expository and persuasive speaking, with emphasis on finding, evaluating, and organizing materials, and on simplicity and directness in style and delivery. Practice in preparing and delivering speeches of various types on current issues and in chairmanship; study of examples; conferences.

The services of the Speech Clinic are available to those students who need remedial exercises. Students whose native language is not English must obtain special clearance from the Department before registering.

205. DISCUSSION. Spring term. Credit four hours. Not open to freshmen. M W F 10. Mr. WILSON.

Study of principles and methods of oral communication in small groups, especially informal, problem-solving conferences. Practice in round-table, committee, and panel deliberation. Independent reading on problems of communication and principles of investigating, analyzing, and presenting problems of fact, value, and policy.

301. PERSUASION AND ARGUMENT—I. Either term. Credit four hours. Open to upperclassmen and to underclassmen who have taken Speech and Drama 103, 105, or 201. M W F 9. First term, Mr. SCHEIDEL. Second term, Mr. ———.

Study of the principles of reasoning and motivation in persuasive oral discourse. Topics to be considered: investigation and analysis of issues, types and tests of evidence and reasoning as applied in discussion of public questions, briefing, methods of proof and refutation.

Practice in analysis of supporting materials and in construction and delivery of speeches; study of examples; conferences.

302. PERSUASION AND ARGUMENT—II. Spring term. Credit four hours. Prerequisite, Speech and Drama 301. M W F 9. Mr. SCHEIDEL.

Advanced study of persuasive oral discourse with special attention to elementary psychological principles of motivation and to audience adaptation in situations involving confrontation. Practice in speech composition, in forensic and parliamentary debate, and in cross-examination.

401. FORMS OF PUBLIC ADDRESS. Fall term. Credit four hours. For upperclassmen and graduates. T Th 11-12:15. Mr. WILSON.

Study of style in various forms of public address: legislative, legal, ceremonial, campaign, sermon. Speeches illustrating the forms of address will be drawn from the works of Burke, Webster, Lincoln, F. D. Roosevelt, Churchill, and others. Some practice in speech composition, oral and written.

402. PSYCHOLOGY OF PERSUASIVE DISCOURSE. Spring term. Credit four hours. For upperclassmen and graduates. T Th 11-12:15. Mr. SCHEIDEL.

An examination of the available means of persuasion in various settings. Lectures, readings, and research reports on problems and theories of persuasion with special emphasis on empirical findings. Topics considered will include the persuader's creative and analytical processes, audience perception and response, the modes of appeal, the ethics of persuasion. Critical analysis of contemporary persuasion.

[**411. PUBLIC ADDRESS IN HISTORICAL PERSPECTIVE: 1350-1750.** Not offered in 1963-1964.]

412. PUBLIC ADDRESS IN HISTORICAL PERSPECTIVE: 1750-1850. Spring term. Credit three hours. Open to upperclassmen and graduate students who have had one of the following: Speech and Drama 105, Speech and Drama 201 or equivalent, six hours of English history or American history. T Th S 10. Mr. ———.

Critical study of the settings, content, and

persuasive influence of significant British and American addresses. Special attention will be given to speeches treating the American and French revolutions, ratification of the Constitution of the United States, the Napoleonic wars, religious and ethical idealism, economic nationalism, and slavery. Addresses by Burke, Pitt, Fox, James Wilson, Hamilton, Cardinal Newman, Emerson, Webster, Cobden, Disraeli, Wilberforce, and Wendell Phillips will be among those studied. Lectures, readings, research papers.

[413. **PUBLIC ADDRESS IN HISTORICAL PERSPECTIVE: 1860-1960.** Not offered in 1963-1964.]

501. **SEMINAR IN RHETORICAL THEORY.** Fall term. Credit four hours. M 2-4:30. Mr.

Special topics in rhetorical theory.

[502. **SEMINAR IN RHETORICAL THEORY.** Not offered in 1963-1964.]

CLASSICAL RHETORIC AND ORATORY. (See Classics 408.)

510. **EXPERIMENTAL RESEARCH METHODS IN SPEECH.** Fall term. Credit four hours. Prerequisite, a basic course in statistical methods or consent of the instructor. Th 2-4:30. Mr. SCHEIDEL.

Applications of scientific methods to the study of speech behavior with emphasis on problems of measurement and experimental design. Illustrative experiments will be planned and executed.

620. **THESES AND SPECIAL PROBLEMS IN RHETORIC AND PUBLIC ADDRESS.** Either term. Credit and hours to be arranged. Messrs. —, SCHEIDEL, WILSON.

Open to graduate candidates working on theses and to other graduates prepared for independent study of special topics in rhetoric and public address.

The Department calls attention to three prizes in public speaking, competition for which will be open in the spring term: The Woodford Prize for seniors; the Class of 1894 Memorial Prize in Debate for juniors and seniors; the Class of 1886 Memorial Prize in Public Speaking for sophomores and juniors.

II. SPEECH BEHAVIOR AND PATHOLOGY

233. **ENGLISH PHONETICS.** Spring term. Credit three hours. M W F 9. Mr. CANTER.

A study of the physiological and acoustic principles of speech sound classification using the International Phonetic Alphabet. Application of these principles to the identification, production, and general analysis of American English as a system of oral communication. Students planning to take upperclass work in speech behavior and pathology should elect this course as early as possible.

234. **SURVEY OF SPEECH DISORDERS.** Fall term. Credit three hours. M W F 9. Mr. NUTTALL.

A survey of the common types of speech disorders, their incidence, causes, and implications for correction. The speech disorders of children are emphasized.

341. **STRUCTURE AND FUNCTION OF THE SPEECH MECHANISM.** Fall term. Credit four hours. M W F 12. Mr. CANTER.

Study of the anatomical and physiological bases of speech production with special attention to the neurological control of speech.

345. **SPEECH BEHAVIOR.** Fall term. Credit four hours. M W F 11. Mr. NUTTALL.

Designed to afford a comprehensive and integrated view of speech as a human behavior. A study of the intrapersonal and interpersonal purposes of speech and the capacity and limitations of speech behavior in serving these purposes.

351. **ORGANIC SPEECH DISORDERS.** Spring term. Credit four hours. Prerequisite, Speech and Drama 341 or consent of instructor. M W F 12. Mr. CANTER.

Study of the pathologies underlying major organic speech disorders. Attention will be given to orofacial abnormalities (cleft palate, malocclusion) and to neurological disturbances. Causes of the disorders will be explored and implications for speech rehabilitation discussed.

355. **FUNCTIONAL SPEECH DISORDERS.** Spring term. Credit four hours. Prerequisite, Speech and Drama 345 or consent of the instructor. M W F 11. Mr. NUTTALL.

Consideration of abnormal speech behaviors with special attention given to disorders of articulation and the voice, and to stuttering. Causes of the disorders will be explored and implications for therapy discussed.

358. **DISORDERS OF SPEECH RECEPTION.** Spring term. Credit four hours. M W F 2. Mr. NUTTALL.

Study of basic scientific information on which current concepts of hearing and deafness are

based: psychophysics of audition, anatomy of the hearing apparatus, the neurophysiology of hearing. Consideration will be given to the causes of hearing loss and the measurement of auditory functions.

461-462. CLINICAL PROCEDURES IN SPEECH PATHOLOGY. Throughout the year. Credit two hours a term. Open to qualified upperclassmen and graduates. May not be counted toward undergraduate major. Hours to be arranged. Mr. CANTER.

Study of the principles and procedures of diagnosis and therapy for the speech-handicapped. Observation and practice in the Speech Clinic are required.

565. SEMINAR IN SPEECH PATHOLOGY. Spring term. Credit four hours. F 3-5:30. Mr. NUTTALL.

Seminar topics selected from among aphasia and related language disorders, symptom formation in stuttering, voice disorders, clinical audiology.

660. THESES AND SPECIAL PROBLEMS IN SPEECH BEHAVIOR AND PATHOLOGY. Either term. Credit and hours arranged. Messrs. CANTER, NUTTALL and SCHEIDEL.

Open to graduate candidates working on theses and to other graduates prepared for independent study of special topics in speech behavior and pathology.

665-666. SEMINAR IN SPEECH BEHAVIOR. Throughout the year. Credit four hours a term. T 2-4:30. First term, Mr. CANTER. Second term, Mr. ———.

Advanced study of selected topics in speech behavior.

SPEECH CLINIC. *The Speech Clinic is one of the student services of the University. It serves all regularly enrolled students on a noncredit basis. Those wishing assistance in connection with speech problems may consult Mr. Canter for advice and, if necessary, assignment to a member of the Speech Clinic staff for individualized aid and instruction.*

DRAMA

271. INTRODUCTION TO THEATRE ART. Spring term. (Not offered in 1964-1965.) Credit three hours. Not open to freshmen or to students who have taken Speech and Drama 106. T Th S 10. Mr. CARLSON.

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, and field trips.

[273. **THE PUBLIC ARTS: FILM, RADIO, AND TELEVISION.** Not offered in 1963-1964.]

281. ORAL INTERPRETATION OF LITERATURE. Fall term. Credit three hours. Not open to freshmen. M W F 9. Mr. GOLDEN.

An introductory course intended to help the student communicate accurately and expressively in reading aloud. Study of principles and criteria of good reading; analysis and delivery of selected materials from prose and poetry; conferences; drill.

283. DRAMATIC INTERPRETATION. Fall term. Credit three hours. Not open to students who have taken Speech and Drama 104. T Th 11. Laboratory, M 2-4. Mr. ALBRIGHT.

An introductory course in acting; analysis and performance of varied types of dramatic prose and poetry; study of speech and action as adapted to the stage with special attention to problems of characterization; reports, individual exercises, and group rehearsal.

285. PLAY PRODUCTION. Fall term. Credit three hours. Not open to freshmen. W F 12. Laboratory, M 2-4. Mr. STANTON.

Principles and methods of dramatic production, with special attention to directorial controls. Fundamentals of theatrical mounting; survey of practical phases of production. Required of majors in drama; recommended to others as basic to all 300 and 400 courses in dramatic production.

[373. **A SURVEY OF THEATRICAL THEORY.** Not offered in 1963-1964.]

375. THE MOTION PICTURE: A SURVEY. Fall term. Credit four hours. T Th 11. Laboratory, T 2-4:30. Mr. STANTON.

An introduction to the history and art of the film: its characteristic problems, devices, and development. Representative motion pictures, from *The Great Train Robbery* and Griffith's *The Birth of a Nation* or *Intolerance* to contemporary films of significance, will be studied. Students are urged to attend the film programs of the University Theatre.

376. THE MOTION PICTURE: FILMS OF FACT. Spring term. Credit four hours. T Th 11. Laboratory, T 2-4:30. Mr. STANTON.

An examination of the nonfiction film: the documentary and its derived types including propaganda, informational, and classroom films. Attention will be given to the artistic

and functional values of motion picture essays, both American and foreign. Lectures, discussions, and reports; examples of various types of films will be shown and analyzed.

381. STAGECRAFT. Fall term. Credit four hours. No prerequisite but previous study of acting or play production recommended. M W 12. Laboratory, T 2-4:30. Mr. CARLSON.

The theory and practice of stage production and design; theatre structure and equipment, problems and practice in scene construction and painting, elements of lighting. Lectures, demonstrations, research reports.

[382. **STAGE LIGHTING AND DESIGN.** Not offered in 1963-1964.]

383-384. THEATRE PRACTICE. Throughout the year; may be entered either term. Credit two hours a term. Open by consent of the instructors to upperclassmen who have taken or who are taking Speech and Drama 101, 283, or 285. Two terms normally required for majors in drama. Hours to be arranged. Messrs. CARLSON and McCALMON and the Staff of the University Theatre.

Projects in the productions of the University Theatre.

[385. **ADVANCED DIRECTING.** Not offered in 1963-1964.]

386. ADVANCED ACTING. Spring term. Credit four hours. Prerequisite, Speech and Drama 285 or consent of instructor. W 2-4:30. Mr. McCALMON.

Varied projects in acting and group rehearsal, correlated with public presentations; individual drills, pantomimes, and reading exercises.

388. PLAYWRITING. Fall term. Credit four hours. Previous study in play production recommended. F 2-4:30. Mr. McCALMON.

A consideration of the art and craft of writing for the theatre; practice through the composition and testing of one-act plays.

391. HISTORY OF THE THEATRE. Fall term. Credit four hours. M W F 10. Mr. STANTON.

The development of the theatre, with special attention to the period theatres and theatrical styles which influence modern stage presentation.

392. AMERICAN DRAMA AND THEATRE. Spring term. Credit four hours. M W F 10. Mr. GOLDEN.

A study of the American theatre and of representative American plays from the colonial period to the present, with emphasis on the drama as an experience of the national life and culture.

491. SEMINAR IN THEATRE HISTORY. Spring term. Credit four hours. Hours to be arranged. Mr. STANTON.

Selected topics in the history of the theatre.

495. THEATRE AESTHETICS. Fall term. Credit four hours. Prerequisites, Speech and Drama 285 plus two 300-level or 400-level courses in drama. W 2-4:30. Mr. ALBRIGHT.

The chief theories of dramatic production in relation to aesthetic principles.

[497. **THEATRE CRITICISM.** Not offered in 1963-1964.]

[595. **SEMINAR IN THEATRE AESTHETICS.** Not offered in 1963-1964.]

597. SEMINAR IN THEATRE CRITICISM. Fall term. Credit four hours. Hours to be arranged. Mr. McCALMON.

Selected topics in theatre criticism. Primarily for doctoral candidates.

690. THESES AND SPECIAL PROBLEMS IN DRAMA AND THE THEATRE. Either term. Credit and hours to be arranged.

Open to graduate candidates working on theses and to other graduates prepared for independent study of special topics in drama and theatre.

Three prizes are offered under the auspices of the Department: the Heermans Prize for One-act Plays on an American Theme (open to undergraduates), the Cornell Dramatic Club 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.

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.

HONORS

328-329. INDEPENDENT STUDY: HONORS. Throughout the year. Credit four hours a term. Prerequisite, acceptance as a candidate for Honors. Hours to be arranged. Members of the Department.

428. HONORS SEMINAR. Spring term. Credit four hours. Prerequisite, senior standing as a candidate for Honors. Hours to be arranged. Members of the Department.

429. HONORS RESEARCH. Fall term. Credit four hours. Prerequisite, senior standing as a candidate for Honors.

ZOOLOGY

Mr. W. A. WIMSATT, *Chairman*; MESSRS. H. B. ADELMANN, J. M. ANDERSON, L. C. COLE, P. W. GILBERT, S. L. LEONARD, W. N. MCFARLAND, H. F. PARKS, R. B. REEVES, J. R. VALLENTYNE.

Zoology deals with all aspects of the biology of animals. The Department of Zoology offers introductory courses fundamental to an understanding of animal biology and valuable to the student desiring only limited work in natural science, as well as intermediate and advanced work in several of the important basic disciplines of zoology. The student who has completed the major program in zoology will be well prepared for graduate work leading to advanced degrees in zoology or biology, or for the study of medicine or dentistry.

Prerequisites for admission to the major program include (a) Zoology 101-102, or 103-104, with a grade of at least 75 for each term; (b) Chemistry 105-106 or the equivalent; (c) Physics 101-102 or (preferably) 207-208.

The requirements for completion of the major program are as follows: (a) Zoology 321-322; (b) Plant Breeding 101 (Genetics); (c) Zoology 441-443 or 541-543; (d) a minimum of twelve hours to be selected from the following courses: Zoology 315-316; 325; 326; 360 or 561-562; 365 or 370; 426; 441-443 or 541-543; 524; 570; 391-392-491-492 (four hours only); Conservation 7-8 or Entomology 122 or Entomology 150; (e) organic chemistry (Chemistry 353-355 or the equivalent; maximum of six hours applicable). Further, it is strongly recommended that all students majoring in zoology complete an additional six hours selected from courses in botany, mathematics, or statistics (ILR 210, 311).

Honors candidates must take at least eight hours of advanced and intensive Honors work (Zoology 391-392-491-492) under the direction of a staff member; of these eight hours, not more than four may be counted toward the completion of the normal course requirements for a major in zoology. During their final term, Honors candidates will be required either to submit a creditable thesis or to pass a comprehensive examination. Prerequisites for admission to candidacy for Honors are a cumulative average grade of 80 in all subjects and permission of the Honors adviser. Students who can meet the quality prerequisite and are interested in Honors candidacy should confer with the Honors adviser, Professor Leonard, early in the junior year, with a view to arranging admission and formulating plans for completion of the Honors requirements. If possible, Honors candidates should register for one of the Honors courses (Research in Zoology) not later than the second term of the Junior year.

Provision is also made for a limited number of students who are not Honors candidates to undertake research in zoology under the supervision of a staff member (Zoology 381-382-481-482; hours and credit variable), which, however, may not be counted toward the completion of course requirements for a major in zoology.

Zoology 101-102 may be presented in satisfaction of the first set of distribution requirements (biological sciences).

Students who are not majoring in zoology may satisfy the second distribution requirement in biological sciences by selecting sequences of related courses, offered by the Department of Zoology at or above the 200 level, for which the stated prerequisites can be met. For this purpose a sequence is considered as a pair of sequentially numbered courses (e.g., Zoology 315-316, or 321-322), or as a pair of courses not so numbered but dealing with closely related subjects. The following groupings are suggested, but this is by no means a complete list: Zoology 201, 242; Zoology 201, 370; Zoology 360, 365; Zoology 325, 326, or 426. Other combinations are admissible but should be checked with the Department; note that one term of Zoology 321-322 may not be combined with a different course to constitute a sequence.

101-102. INTRODUCTORY ZOOLOGY.

Throughout the year. Credit three hours a term. If taken after Biology 1, credit two hours a term. Intended for students in Arts and Sciences. Zoology 101 prerequisite to Zoology 102. Lectures, T Th 9 or 12. Stimson G-25. Laboratory, M T W Th or F 2-4:20 or W 8-10:20 or F 10-12:20 or S 9-11:20. Stimson 102, 104, 107, and 116. Regularly scheduled examinations will be held at 8 p.m. twice each term. Mr. ANDERSON and Assistants.

An introduction to the fields of zoological study, designed both to provide a background for more specialized courses in zoology and

to acquaint students in other fields with the fundamental facts about animal life. The principal divisions of the animal kingdom are surveyed with respect to similarities and differences in structure, function, behavior, and evolutionary history. The importance of other animals to man is emphasized. Both in the laboratory work and in lectures the student is introduced to representative types of animals and to the techniques by which man has acquired biological knowledge.

103-104. GENERAL ZOOLOGY. Throughout the year. Credit three hours a term. If taken after Biology 1, credit two hours a term. In-

tended for students in Agriculture and Home Economics. Zoology 103 normally prerequisite to Zoology 104. Lectures, T Th 8 or 11. Laboratory, M T W Th or F 2-4:20; M T 10-12:20; or S 8-10:20, 9-11:20, 10:30-1. Stimson 102, 104, 107. Regularly scheduled examinations will be held at 7 p.m. twice each term. Mr. LEONARD and Assistants.

A survey of the various branches of the zoological sciences to serve as a background for advanced work in the study of animals. The principles of zoology will be illustrated by the study of representative animals with emphasis on those of economic importance to agriculture and to man. Emphasis will be placed on the biology of the vertebrates including the structural, functional, developmental, and genetic aspects.

201. HUMAN STRUCTURE AND DEVELOPMENT. Fall term. Credit three hours. Open to students in all colleges but should not be elected by prospective zoology majors. Lectures, T Th 10. Recitations, T 8, 9, 11, W 8, 9, 10, 11, Th 8, 9, 11, or F 8, 9, 10, 11. Mr. PARKS and Assistants.

An examination of the development and structure of the human body. The anatomy of the body is approached as a study of the structural basis for its functional activities. This course and Zoology 242 are complementary, the one course emphasizing embryology and anatomy of the human body while the other deals primarily with physiological functions of organ systems.

Zoology 201 is one of a group of courses dealing with the general topic of the nature of man from the perspectives of the biological and behavioral sciences. The other courses in the group are Child Development 115 and Anthropology 312. The courses may be taken singly or in any order.

242. HUMAN PHYSIOLOGY. Spring term. Credit three hours. Prerequisite, a previous course, in either college or high school, in biology and in chemistry. Open to students in all colleges, but should not be elected by prospective zoology majors. M W F 10. Mr. REEVES.

An analysis of the functions of the human body. This survey will include blood and the circulatory system, nerve, muscle, kidney, respiratory system, digestive tract, endocrine and reproductive organs, central nervous system, and the organs of the special senses. Emphasis will be placed on interaction of systems and regulatory mechanisms.

This course and Zoology 201 are complementary, the one course emphasizing embryol-

ogy and anatomy of the human body while the other deals primarily with physiological functions of organ systems.

[315-316. INVERTEBRATE ZOOLOGY. Throughout the year. Credit four hours a term. Either term may be taken independently, but there is some advantage in following the normal sequence. Prerequisites, Zoology 101-102 or 103-104, or equivalent, and permission of instructor. Lecture, W 11. Laboratory, W F 2-4:30. Mr. ANDERSON and Assistant. Not offered in 1963-1964.]

321-322. COMPARATIVE ANATOMY OF VERTEBRATES. Throughout the year. Credit three hours a term. Prerequisite, Zoology 101-102, or 103-104, or the equivalent. In these prerequisite courses a student must have earned a grade of at least 75. Zoology 321 prerequisite to Zoology 322. Lectures, M 8 or 9. Laboratory, M F or T Th 2-4:30; W F or T Th 8-10:30; or W 2-4:30 and S 8-10:30. Mr. SNYDER and Assistants.

A thorough study and dissection of representative vertebrate types, including fish, amphibian, reptile, bird, and mammal, together with demonstrations on species other than the types dissected. Intended to give students an evolutionary background for the study and appreciation of the structure of higher vertebrates, including man.

325. HISTOLOGY: THE BIOLOGY AND DEVELOPMENT OF THE TISSUES. Fall term. Credit four hours. Prerequisites, Zoology 101-102, or 103-104, and 321-322. Lectures, T Th 11. Laboratory, T Th 8-10:30 or 2-4:30. Mr. WIMSATT and Assistants.

A survey of the structure, functions, and development of the tissues. The treatment is general, designed to provide students of biology with a basis for the understanding of normal and abnormal structure of the vertebrates. Each student will make for his own use a series of typical microscopic preparations.

326. VERTEBRATE EMBRYOLOGY. Spring term. Credit five hours. Prerequisites, Zoology 101-102, or 103-104, and 321-322. Zoology 325 is also normally a prerequisite, and permission to omit it will be granted only in exceptional cases. Lectures, T Th 11, S 10. Laboratory, T Th 8-10:30 or 2-4:30. Mr. ADELMANN and Assistants.

An introduction to general vertebrate embryology designed to provide a basis for the appreciation of biological problems. The material is treated comparatively with particular emphasis on the development of the amphibian, the bird, and the mammal. A few invertebrate forms are used where desirable for illustration.

360. GENERAL ANIMAL ECOLOGY. Spring term. Credit four hours. Prerequisites, Zoology 101-102 or 103-104, or their equivalent, and consent of the instructor. Lectures, W F 10. A total of eight laboratory and field periods S 8-1. Mr. COLE.

An introduction to the local and world-wide distribution of animals with reference to conditions of existence; effects of environmental factors on animals; adaptations to special habitats; modification of environment by animals; principles of population growth, composition, and density control. The adaptations of local animals to particular habitats will be studied in the field and laboratory.

365. EVOLUTION. Fall term. Credit four hours. Prerequisites, one year of college work in a biological science and one year of college chemistry. M W F 10. Mr. VALLENTYNE.

An integrating course for students interested in the principles and mechanisms of the evolutionary process. Covering the origin of living matter, Darwin on "the origin of species," the gene concept, and the genetic basis of natural selection. Term paper required.

370. PHYSICAL ANTHROPOLOGY—HUMAN EVOLUTION. Spring term. Credit four hours. Prerequisites: for Zoology majors, Zoology 101-102; for others, Biology 1-2, Anthropology 103, or consent of instructor. Lectures, M W F 11. Mr. ASCHER and Assistant.

A study of human evolution from the antecedents of man to the emergence of modern man. Special attention is given to primate behavior, interpretations of the fossil hominid record, modern human variability, and micro-evolution in contemporary populations. The interplay of cultural and biological factors in human evolution is emphasized.

381-382. RESEARCH IN ZOOLOGY. Informal, junior year. Credit and hours to be arranged. Problems may be undertaken in any phase of zoology, but the consent of the instructor concerned is a prerequisite.

391-392. RESEARCH IN ZOOLOGY. Honors, junior year. Either term. Credit and hours to be arranged. Prerequisite, admission to candidacy for Honors in zoology. Individual advanced work under the guidance of an Honors adviser, designed to increase the knowledge and experience of the candidate with the subject matter and the methods of research in some important phase of zoology.

[403-404. SPECIAL TOPICS IN ZOOLOGY. Throughout the year. Credit four hours a term. Open to graduate students and ad-

vanced undergraduates. Permission of instructor required. Hours as arranged. Mr. ———. Not offered in 1963-1964.]

426. SPECIAL HISTOLOGY: THE BIOLOGY OF THE ORGANS. Spring term. Credit four hours. Prerequisite, Zoology 325. Enrollment limited to 20 students. Lectures, W F 9. Laboratory, W F 2-4:30. Mr. WIMSATT and Assistants.

A continuation of Zoology 325. Zoology 325 and 426 together give the fundamental facts of the microscopic structure and function of the body. Opportunity to gain knowledge of technique in the fixing, embedding, and sectioning of selected organs is also offered.

441. GENERAL AND COMPARATIVE PHYSIOLOGY, LECTURES. Fall term. Credit three hours. Prerequisites, one year of biology or zoology and college courses in chemistry. Organic chemistry desirable. Lectures, M W F 10. Mr. McFARLAND.

The principal physiological functions of both vertebrates and invertebrates, including muscle contraction, nerve action, respiration, metabolism, digestion, circulation, excretion, and physiological regulation.

443. GENERAL AND COMPARATIVE PHYSIOLOGY, LABORATORY. Fall term. Credit one hour. Must be taken with Zoology 441. Limited to 96 students, 12 per section. Individual sections meet in alternate weeks; a total of seven lectures in alternate weeks. Lecture, W 2. Laboratory, T 8-11, M T F 1:40-4:30. Mr. McFARLAND and Assistants.

481-482. RESEARCH IN ZOOLOGY. Informal, senior year. See description under Zoology 381-382.

491-492. RESEARCH IN ZOOLOGY. Honors, senior year. See description under Zoology 391-392.

521-522. HUMAN ANATOMY. Hours and credit to be arranged. Open to a limited number of graduate students only. Permission of instructor required for registration. Mr. PARKS. Detailed dissection of the human body with some emphasis upon function.

524. COMPARATIVE NEUROLOGY. Spring term. Credit four hours. Primarily for graduate students but open to qualified undergraduates. Permission of instructor required. Lectures, T Th 12. Laboratory, M or W 2-4:30. Mr. PARKS and Assistant.

A comparative study of the vertebrate nervous system with emphasis upon the primate. Studies include dissections of the brain and the identification of nuclei and tracts in sections

of the brain and spinal cord. Functional aspects of anatomical relations are stressed.

540. EXPERIMENTAL ENDOCRINOLOGY. Spring term. Credit two or three hours. Prerequisites, a year of zoology, organic chemistry, physiology, and consent of the instructor. Primarily for graduate students; open to undergraduates for two credits. Lectures, M F 11. Laboratory, M 2-4:30. Mr. LEONARD.

Lectures on anatomy, physiology of the vertebrate endocrine glands, glandular interrelationships; chemical and physiological properties of hormones, assay methods. Laboratory, small-animal surgery and microtechnique for the endocrines, illustrative experiments on the effects of hormones.

541. CELLULAR PHYSIOLOGY. Fall term. Credit four hours. Prerequisites, animal or plant physiology, organic chemistry, physics, and consent of the instructor. Enrollment is limited. Lectures, M W 11. Seminar, T 1:40-4:30. Laboratory, W or Th 1:40-4:30. Mr. REEVES.

An introduction to basic problems of cellular function including structural and functional organization of cells, role of nucleic acids, permeability and active transport, contractility, excitability, metabolism, growth, and cellular interactions. The laboratory emphasizes a number of biophysical approaches to cellular activities.

543. CELLULAR PHYSIOLOGY LECTURES. Fall term. Credit two hours. Prerequisite, organic chemistry. Zoology 441-443 or Zoology 325 or plant physiology is also desirable. This course consists of the lecture part of Zoology 541. Mr. REEVES.

[554. SPECIAL TOPICS IN PHYSIOLOGY. Spring term. Credit four hours. Prerequisite, consent of instructor. For advanced students in biological sciences. Enrollment is limited. Th 1:40-4:30. Mr. REEVES. Not offered in 1963-1964.]

556. SPECIAL TOPICS IN COMPARATIVE PHYSIOLOGY. Spring term. Credit four hours. Prerequisite, consent of instructor. For advanced students in biological sciences. Enrollment limited. Th 1:40-4:30. Mr. McFARLAND.

Detailed consideration of selected topics in comparative physiology. Preparation of dem-

onstration experiments stressing technique and individual research problems will be included. Topics will vary from year to year.

[561. ECOLOGY AND PHYSIOLOGY OF THE INVERTEBRATES. Fall term. Credit four hours. Mr. COLE. Not offered in 1963-1964.]

562. ECOLOGY AND PHYSIOLOGY OF THE INVERTEBRATES. Spring term. Credit four hours. Prerequisites, one year of general biology or introductory zoology. Organic chemistry and some college mathematics are desirable. Lectures, M W 11. Laboratory, W 2-4:30. Mr. COLE.

For advanced undergraduates and graduate students, stressing function at the level of the individual organism. Emphasis will be on physiological processes as these relate to natural habitats and on phylogenetic characteristics as these restrict the variety of habitats available for occupancy by various invertebrates. The methods of response and toleration physiology will be utilized to investigate life processes in various invertebrates exposed to experimentally varied conditions. The interpretation of life tables and mortality data will be introduced as experimental techniques.

570. BIOGEOCHEMISTRY. Spring term. Credit four hours. Prerequisites, one year of college work in a biological science, one course in geology, organic chemistry, and consent of the instructor. Ecology and biochemistry are desirable. Enrollment is limited. Lectures, T Th 9. Seminar, S 9. Laboratory, M or T 2-4:30. Mr. VALLENTYNE and Assistant.

An introduction to the geochemical roles of living organisms, including the chemical composition of the organism-environment complex, the influence of living matter on erosional and depositional processes, biogeochemical cycles, fossil organic matter, and biological transformation of minerals. The laboratory is exclusively devoted to the geochemistry of organic matter.

SEMINAR IN ZOOLOGY. Fall and spring terms. For graduate students and Honors students in zoology, but open to all who are interested. W 4:30. Stimson 105.

Reports and discussion of current research in zoology.

INTERDEPARTMENTAL COURSES

301-302. BRAIN MECHANISMS AND MODELS. Throughout the year. Credit four hours a term. Prerequisites, calculus, graduate or advanced undergraduate standing, and consent of instructor. Knowledge of modern alge-

bra and probability theory is desirable. Lecture, W 3, with additional hours to be arranged. Mr. ROSENBLATT, with assistance of Mr. BLOCK and guest lecturers.

Fall semester: review of fundamentals of neurophysiology, psychological and physiological criteria for brain models, computers, and digital automata in relation to brain mechanisms, review of representative models, theory of elementary perceptrons. The Mark I perception will be available for laboratory work. Spring semester: theory of multi-layer and cross-coupled perceptrons; recognition of temporal patterns; problems of figure organization, cognitive sets, sequential programs, and other problems of advanced models.

[304. **THE EMERGENCE OF MODERN AFRICA**. Credit three hours. Permission required. One lecture and one discussion section a week; hours to be determined. Mr. MORSE, Mr. FRIEDLAND, and others.

The main stream of developments in Africa from pre-Colonial times approached from the standpoint of social science. While an acquaintance with one or more of these disciplines will be helpful, it is not essential. The emphasis of this survey course will fall successively on the traditional societies; the impact of colonialism and the subsequent

emergence of nationalism; the problems, political and social, of independence; and finally, the prospects for economic development. A number of guest lecturers will be invited to address the class. Not offered in 1963-1964.]

LATIN AMERICAN STUDIES

The attention of students interested in Latin American Studies is called to the variety of courses in this field offered in different departments: Agricultural Economics 255; Anthropology 332, 351, 541; Economics 325 and 565, History 319-320, 487, 488; Industrial and Labor Relations 533; Rural Sociology 214; Spanish 311-312.

SEMINAR: LATIN AMERICAN STUDIES 602. Spring term. Credit four hours. Hours to be arranged. Mr. DAVIS.

A required course for all graduate students minoring in Latin American studies. Students will work on projects in their field of interest under the direction of a faculty member. Various faculty specialists in Latin American affairs will participate in the seminar.

COURSES IN OTHER DIVISIONS

Courses of interest to students in the College of Arts and Sciences are offered by the Departments of Military Science, Air Science, Naval Science, Physical Education, and Clinical and Preventive Medicine.

The offerings in military training are described in the Announcement of that name, the others in leaflets published by the departments.

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