

PHILOSOPHY

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Courses given in Philosophy have the subject code PHIL. For a complete list of subject codes, see Appendix.

Philosophy concerns itself with fundamental problems. Some are abstract and deal with the nature of truth, justice, value, and knowledge; others are more concrete, and their study may help guide conduct or enhance understanding of other subjects. In addition, philosophy examines the efforts of past thinkers to understand the world and people's experience of it.

Although it may appear to be an assortment of different disciplines, there are features common to all philosophical enquiry. These include an emphasis on methods of reasoning and the way in which judgments are formed, on criticizing and organizing beliefs, and on the nature and role of fundamental concepts.

Students of almost any discipline can find something in philosophy which is relevant to their own specialties. In the sciences, it provides a framework within which the foundations and scope of a scientific theory can be studied, and it may even suggest directions for future development. Since philosophical ideas have had an important influence on human endeavors of all kinds, including artistic, political, and economic, students of the humanities should find their understanding deepened by acquaintance with philosophy.

Philosophy is an excellent major for those planning a career in law, medicine, or business. It provides analytical skills and a breadth of perspective helpful to those called upon to make decisions about their own conduct and the welfare of others. Philosophy majors who have carefully planned their undergraduate program have an excellent record of admission to professional and graduate schools.

The Special Program in the History and Philosophy of Science enables students to combine interests in science, history, and philosophy. Students interested in this program should see the special adviser.

The joint major in Philosophy and Religious Studies combines courses from both departments into a coherent theoretical pattern.

The Tanner Memorial Library of Philosophy contains an excellent working library and ideal conditions for study.

Graduate students and undergraduate majors in philosophy have formed associations for discussion of philosophical issues and the reading of papers by students, faculty, and visitors. These associations elect student representatives to department meetings.

UNDERGRADUATE PROGRAMS BACHELOR OF ARTS

There are two ways of majoring in philosophy: the General Program and the Special Program in the History and Philosophy of Science. A student completing either of these receives a B.A. degree in Philosophy. There is also a major program offered jointly with the Department of Religious Studies. To declare a major, a student should consult with the Director of Undergraduate Study and see the undergraduate student services administrator to be assigned an adviser and work out a coherent plan. The department strongly urges proficiency in at least one foreign language.

GENERAL PROGRAM

1. Course requirements, minimum 55 units:
 - a) Preparation for the major: an introductory course (under 100) and 80. (PHIL 80 should normally be taken no later than the first quarter after declaring the major.) Students taking both quarters of the Winter/Spring Philosophy Introduction to the Humanities (IHUM) track can count 5 units toward the introductory Philosophy requirement.
 - b) The core, 24 additional Philosophy units, as follows:
 - 1) Logic: one from 50 (formerly 57), 150 (formerly 159), 151 (formerly 160A), 154 (formerly 169)
 - 2) Philosophy of science: any course from 60, 61, 156, 163-168
 - 3) Moral and political philosophy: one from 170-173
 - 4) Metaphysics and epistemology: one from 180-189
 - 5) History of philosophy: 100 and 102 are required of each major
 - c) One undergraduate philosophy seminar from the 194 series.
 - d) Electives: courses numbered 10 or above, at least 13 units of which must be in courses numbered above 99.
2. Units for Tutorial, Directed Reading (PHIL 196, 197, 198), *The Dualist* (PHIL 198), Honors Seminar (PHIL 199), or affiliated courses may not be counted in the 55-unit requirement. No more than 10 units completed with grades of "satisfactory" and/or "credit" may be counted in the 55-unit requirement.
3. A maximum of 10 transfer units or two courses can be used for the departmental major. In general, transfer courses cannot be used to satisfy the five area requirements or the undergraduate seminar requirement. Students may not substitute transfer units for the PHIL 80 requirement.

SPECIAL PROGRAM IN HISTORY AND PHILOSOPHY OF SCIENCE

Undergraduates may major in Philosophy with a degree field in History and Philosophy of Science under the Department of Philosophy. Each participating student is assigned an adviser who approves the course of study. A total of 61 units are required for the sub-major, to be taken according to requirements 1 through 5 below. Substitutions for the listed courses are allowed only by written consent of the undergraduate adviser for History and Philosophy of Science. Students are encouraged to consider doing honors work with an emphasis on the history and philosophy of science. Interested students should see the description of the honors thesis in Philosophy and consult their advisers for further information.

1. Three science courses (for example, biology, chemistry, physics) for 12 units.
2. The following Philosophy (PHIL) core courses must be completed with a letter grade by the end of the junior year:
 - a) one from 50 (formerly 57), 150 (formerly 159), 151 (formerly 160A), 154 (formerly 169)
 - b) 60 or 61
 - c) 80
3. Three history of science courses.
4. Three philosophy of science courses, of which one must be PHIL 164.
5. Three additional courses related to the major, in philosophy or history, to be agreed on by the adviser.
6. At least six courses in the major must be completed at Stanford with a letter grade. Units for Tutorial, Directed Reading, or *The Dualist*

(196, 197, 198) may not be counted in the requirement. No more than 10 units completed with grades of “satisfactory” and/or “credit” may be counted in the requirement.

- Transfer units must be approved in writing by the Director of Undergraduate Study at the time of declaring a major. Transfer courses are strictly limited when used to satisfy major requirements.

SPECIAL TRACK IN PHILOSOPHICAL AND LITERARY THOUGHT

Undergraduates may major in Philosophy with a special degree field in philosophy and literature. Students in this track take courses alongside students from other major departments which also have specialized tracks associated with the program for the study of philosophical and literary thought, with administrative staff in the DLCL. Each student in this track is assigned an adviser in Philosophy, and students’ schedules and overall course of study must be approved in writing by the adviser, and the Directors of Undergraduate Studies of Philosophy and of the program.

A total of 65 units must be completed for this track, including the following requirements.

- Core requirements for the major in Philosophy, including
 - an introductory course
 - PHIL 80
 - the core distribution requirements listed in section 1b of the general program above
- Gateway course in philosophy and literature (PHIL 81). This course should be taken as early as possible in the student’s career, normally in the sophomore year.
- Three courses in a single national literature, chosen by the student in consultation with the adviser and the program director of undergraduate studies. This normally involves meeting the language proficiency requirements of the relevant literature department.
- Electives within Philosophy beyond the core requirements totaling at least 5 units, and drawn from courses numbered 100 or higher.
- Two upper division courses of special relevance to the study of philosophy and literature, as identified by the committee in charge of the program. A list of approved courses is available from the program director of undergraduate studies.
- Capstone seminar in the PHIL 194 series.
- Capstone seminar of relevance to the study of philosophy and literature, as approved by the program committee. In some cases, with approval of the Philosophy Director of Undergraduate Study and the program director of undergraduate studies, the same course may be used to meet requirements 6 and 7 simultaneously. In any case, the student’s choice of a capstone seminar must be approved in writing by the Philosophy Director of Undergraduate Study and the program director of undergraduate studies.

Students are encouraged to consider doing honors work in a topic related to philosophy and literature, either through the Philosophy honors program, or through Interdisciplinary Studies in the Humanities.

The following rules also apply to the special track:

- Units for Honors Tutorial, Directed Reading (PHIL 196, 197, 198), *The Dualist* (PHIL 198), Honors Seminar (PHIL 199) may not be counted toward the 65-unit requirement. No more than 10 units with a grade of “satisfactory” or “credit” may be counted toward the unit requirement.
- A maximum of 15 transfer units may be counted toward the major, at most 10 of which may substitute for courses within Philosophy. Transfer credits may not substitute for PHIL 80 or 81, and are approved as substitutes for the five area requirements or PHIL 194 only in exceptional cases.
- Courses offered in other departments may be counted toward requirements 3, 5, and 7, but such courses, including affiliated courses, do not generally count toward the other requirements. In particular, such courses may not satisfy requirement 4.
- Units devoted to meeting the language requirement are not counted toward the 65-unit requirement.

MINORS

A minor in Philosophy consists of at least 30 units of Philosophy courses satisfying the following conditions:

- IHUM 23A and B (The Fate of Reason) may be counted for a maximum of 5 units.
- At least 10 units must be from courses numbered 100 or above.
- The 30 units must include one of:
 - a history of philosophy course numbered 100 or above
 - two quarters of Area 1 (only 5 of the 10 units can count towards 30-unit requirement)
- One course from any two of the following three areas (PHIL):
 - Philosophy of science and logic: 60, 61, 156, 163-168; 50 (formerly 57), 150 (formerly 159), 151 (formerly 160A), 154 (formerly 169)
 - Moral and political philosophy: 20, 30, 170-172
 - Metaphysics and epistemology: 10, 80, 180-189
- Units for tutorials, directed reading, and affiliated courses may not be counted.
- Transfer units must be approved in writing by the Director of Undergraduate Study at the time of declaring. The number of transfer units is generally limited to a maximum of 10.
- No more than 6 units completed with grades of “satisfactory” and/or “credit” count towards the 30-unit requirement.

Students must declare their intention to minor in Philosophy in a meeting with the Director of Undergraduate Study. This formal declaration must be made no later than the last day of the quarter two quarters before degree conferral. The Permission to Declare a Philosophy Minor (signed by the Director of Undergraduate Study) lists courses taken and to be taken to fulfill minor requirements. This permission is on file in the department office. Before graduation, a student’s record is checked to see that requirements have been fulfilled, and the results are reported to the University Registrar.

HONORS PROGRAM

Students who wish to undertake a more intensive and extensive program of study, including seminars and independent work, are invited to apply for the honors program during Winter Quarter of the junior year. Admission is selective on the basis of demonstrated ability in philosophy, including an average grade of at least ‘A-’ in a substantial number of philosophy courses and progress towards satisfying the requirements of the major.

With their application, candidates should submit an intended plan of study for the remainder of the junior and the senior years. It should include at least 5 units of Senior Tutorial (196) during Autumn and/or Winter Quarter(s) of the senior year. Students who are applying to Honors College may use the same application for philosophy honors. In the quarter preceding the tutorial, students should submit an essay proposal to the Philosophy undergraduate director and determine an adviser.

Students applying for honors should enroll in Junior Honors Seminar (199) during the Spring Quarter of the junior year.

The length of this essay may vary considerably depending on the problem and the approach; usually it falls somewhere between 7,500 and 12,500 words. The honors essay may use work in previous seminars and courses as a starting point, but it cannot be the same essay that has been used, or is being used, in some other class or seminar. It must be a substantially new and different piece of work reflecting work in the tutorials.

A completed draft of the essay is submitted to the adviser at the end of the Winter Quarter of the senior year. Any further revisions must be finished by the fifth full week of the Spring Quarter, when three copies of the essay are to be given to the undergraduate secretary. The honors essay is graded by the adviser together with a second reader, chosen by the adviser in consultation with the student. The student also provides an oral defense of the thesis at a meeting with the adviser and second reader. The essay must receive a grade of ‘A-’ or better for the student to receive honors.

The honors tutorials represent units in addition to the 55-unit requirement.

The Department of Philosophy cooperates with the honors component of the “Interdisciplinary Studies in Humanities” as described in that section of this bulletin.

JOINT MAJOR IN PHILOSOPHY AND RELIGIOUS STUDIES

The joint major in Philosophy and Religious Studies consists of 60 units of course work with approximately one third each in the philosophy core, the religious studies core, and either the general major or the special concentration. Affiliated courses cannot be used to satisfy this requirement.

No courses in either the philosophy or religious studies core may be taken satisfactory/no credit or credit/no credit.

In general, transfer units cannot be used to satisfy the core requirements. Transfer units and substitutions must be approved by the director of undergraduate studies in the appropriate department.

CORE REQUIREMENTS

1. Philosophy (PHIL) courses:
 - a) 80
 - b) 16 units, including at least one Philosophy course from each of the following areas:
 - 1) Logic and philosophy of science: 50 (formerly 57), 60, 61, 150 (formerly 159), 151 (formerly 160A), 154 (formerly 169), 156, 162-168
 - 2) Ethics and value theory: 170-173
 - 3) Epistemology, metaphysics, and philosophy of language: 180-189
 - 4) History of philosophy: 100-103
2. Religious Studies courses: 20 units, including at least two courses in diverse religious traditions (for example, an Eastern and a Western or a literate and a preliterate tradition) and including at least one seminar.

General Major Requirements—Five additional courses (approximately 20 units) divided between the two departments. No more than 5 of these units may come from courses numbered under 99 in either department. Each student must also take at least one undergraduate seminar in religious studies and one undergraduate seminar in philosophy.

Special Concentration—With the aid of an adviser, students pursue a specialized form of inquiry in which the combined departments have strength; for example, American philosophy and religious thought, philosophical and religious theories of human nature and action, philosophy of religion. Courses for this concentration must be approved in writing by the adviser.

Directed Reading and Satisfactory/No Credit Units—Units of directed reading for fulfilling requirements of the joint major are allowed only with special permission. No more than 10 units of work with a grade of 'satisfactory' count toward the joint major.

HONORS PROGRAM

Students pursuing a joint major in Philosophy and Religious Studies may also apply for honors by following the procedure for honors in either of the departments.

COTERMINAL BACHELOR'S AND MASTER'S DEGREES

It is possible to earn an M.A. in Philosophy while earning a B.A. or B.S. This can usually be done by the end of the fifth undergraduate year, although a student whose degree is not in philosophy may require an additional year. Standards for admission to, and completion of, this program are the same as for M.A. applicants who already have the bachelor's degree when matriculating. Applicants for the coterminal program are not, however, required to take the Graduate Record Exam. Information about applying is available from Graduate Admissions in the Registrar's Office. The application deadline for Philosophy is January 14.

For University coterminal degree program rules and University application forms, see <http://registrar.stanford.edu/publications/#Coterm>.

GRADUATE PROGRAMS

The department is prepared to direct and supervise individual study and research to supplement instruction offered in the courses listed below. In addition, advanced seminars not listed in the catalog are frequently organized in response to student interest. Candidates for advanced degrees are urged to discuss their entire program of study with their department advisers as early as possible.

Applications to graduate programs in the Department of Philosophy can be obtained from Graduate Admissions, the Registrar's Office. Applicants must take the Graduate Record Examination by October of the year the application is submitted.

MASTER OF ARTS

University requirements for the M.A. are discussed in the "Graduate Degrees" section of this bulletin.

Four programs lead to the M.A. in Philosophy. One is a general program providing a grounding in all branches of the subject. The others provide special training in one branch.

Admissions—All prospective master's students, including those currently enrolled in other Stanford programs, must apply for admission to the program. The application deadline is March 29 of the academic year preceding entry into the program. In exceptional circumstances, consideration may be given to applications received after the March 29 deadline but before April 30. No fellowships are available. Entering students must meet with the director of the master's program and have their advisers' approval, in writing, of program proposals. The master's program should not be considered a stepping stone to the doctoral program; these two programs are separate and distinct.

Unit Requirements—Each program requires a minimum of 45 units in philosophy. Students in a special program may be allowed or required to replace up to 9 units of philosophy by 9 units in the field of specialization. Although the requirements for the M.A. are designed so that a student with the equivalent of a strong undergraduate philosophy major at Stanford might complete them in one year, most students need longer. Students should also keep in mind that although 45 units is the minimum required by the University, quite often more units are necessary to complete department requirements. Up to 6 units of directed reading in philosophy may be allowed. There is no thesis requirement, but an optional master's thesis or project, upon faculty approval, may count as the equivalent of up to 8 units. A special program may require knowledge of a foreign language. At least 45 units in courses numbered 100 or above must be completed with a grade of 'B-' or better at Stanford. Students are reminded of the University requirements for advanced degrees, and particularly of the fact that for the M.A., students must complete three full quarters as measured by tuition payment.

GENERAL PROGRAM

The General Program requires a minimum of 45 units in Philosophy courses numbered above 99. These courses must be taken for a letter grade and the student must receive at least a 'B-' in the course. Courses taken to satisfy the undergraduate core or affiliated courses may not be counted in the 45 units. The requirement has three parts:

1. *Undergraduate Core*: students must have when they enter, or complete early in their program, the following undergraduate courses (students entering from other institutions should establish equivalent requirements with a master's adviser upon arrival or earlier):
 - a) Logic: 50 (formerly 57), 150 (formerly 159), or 151 (formerly 160A)
 - b) Philosophy of science: any course from 60, 61, 163-167
 - c) Moral and political philosophy: one from 170-173
 - d) Metaphysics and epistemology: one from 80, 180-189
 - e) History of philosophy: two history of philosophy courses numbered 100 or above
2. *Graduate Core*: students must take at least one course numbered over 105 from three of the following five areas (courses used to satisfy the undergraduate core cannot also be counted toward satisfaction of the graduate core). Crosslisted and other courses taught outside the Department of Philosophy do not count towards satisfaction of the core.

- a) Logic and semantics
- b) Philosophy of science and history of science
- c) Ethics, value theory, and moral and political philosophy
- d) Metaphysics, epistemology, and philosophy of language
- e) History of philosophy

Each master's candidate must take at least two courses numbered above 200 (these cannot be graduate sections of undergraduate courses). One may be a graduate core seminar (360, 370, 380, 381), but no student is admitted to a core seminar before completing undergraduate requirements in the area of the seminar and securing the approval of the instructor.

3. Specialization: students must take at least three courses numbered over 105 in one of the five areas.

SPECIAL PROGRAM IN SYMBOLIC SYSTEMS

Students should have the equivalent of the Stanford undergraduate major in Symbolic Systems. Students who have a strong major in one of the basic SSP disciplines (philosophy, psychology, linguistics, computer science) may be admitted, but are required to do a substantial part of the undergraduate SSP core in each of the other basic SSP fields. This must include the following three philosophy courses or their equivalents: 80; 151 (formerly 160A); and one from 181, 183, 184, 186. This work does not count towards the 45-unit requirement.

COURSE REQUIREMENTS

1. Four courses in philosophy at the graduate level (numbered 200 or above), including courses from three of the following five areas:
 - a) Philosophy of language
 - b) Logic
 - c) Philosophy of mind
 - d) Metaphysics and epistemology
 - e) Philosophy of science

At most two of the four courses may be graduate sections of undergraduate courses numbered 100 or higher.

2. Three courses numbered 100 or higher from outside Philosophy, chosen in consultation with an adviser. These courses should be from two of the following four areas:
 - a) Psychology
 - b) Linguistics
 - c) Computer Science
 - d) Education

Remaining courses are chosen in consultation with and approved by an adviser.

SPECIAL PROGRAM IN THE PHILOSOPHY OF LANGUAGE

Admission is limited to students with substantial preparation in philosophy or linguistics. Those whose primary preparation has been in linguistics may be required to satisfy all or part of the undergraduate core requirements as described in the General Program. Those whose preparation is primarily in philosophy may be required to take additional courses in linguistics.

COURSE REQUIREMENTS

1. Philosophy of language: two approved courses in the philosophy of language numbered 180 or higher.
2. Syntactic theory and generative grammar: 384 and LINGUIST 231.
3. Logic: at least two approved courses numbered 151 (formerly 160A) or higher.
4. An approved graduate-level course in mathematical linguistics or automata theory.

DOCTOR OF PHILOSOPHY

The University's basic requirements for the Ph.D. degree (residence, dissertation, examination, and so on) are discussed in the "Graduate Degrees" section of this bulletin. The requirements detailed here are department requirements.

All courses used to satisfy proficiency requirements must be passed with a letter grade of 'B-' or better (no satisfactory/no credit).

At the end of each year, the department reviews the progress of each student to determine whether the student is making satisfactory progress, and on that basis to make decisions about probationary status and termination from the program where appropriate.

Any student in one of the Ph.D. programs may apply for the M.A. when all University and department requirements have been met.

PROFICIENCY REQUIREMENTS

1. *Course requirements*, to be completed during the first two years:
 - a) four core graduate courses and seminars in philosophy of language (381); philosophy of mind, metaphysics, and epistemology (380); value theory (370); and philosophy of science (360)
 - b) three of the four items listed below:
 - 1) three history courses, each consisting of an approved graduate-level course in the history of philosophy. Courses satisfying this seven-out-of-eight requirement must include at least one history course in ancient philosophy, one in modern.
 - 2) PHIL 151 (formerly 160A)
 - 3) PHIL 150 (formerly 159) or the equivalent
 - 4) A total of at least 49 units of course work in the Department of Philosophy numbered above 110, but not including Teaching Methods (PHIL 239) or affiliated courses. Units of Individual Directed Reading (PHIL 240) may be included only with the approval of the Director of Graduate Study.
2. *Teaching Assistance*: a minimum of five quarters of teaching assistance at 25 percent time, usually during the second and third years.
3. *Candidacy*: to continue in the Ph.D. program, each student must be approved for candidacy during the sixth academic quarter (normally the Spring Quarter of the student's second year). Students may be approved for candidacy on a conditional basis if they have only one or two outstanding deficiencies, but are not officially advanced to candidacy until these deficiencies have been removed. Approval for candidacy indicates that, in the department's judgment, the student can successfully complete the Ph.D. In reaching this judgment, the department considers the overall quality of the student's work during the first six quarters and the student's success in fulfilling course requirements.
4. During the third year of graduate study, and after advancement to candidacy, a Ph.D. student should successfully complete at least three graduate-level courses/seminars, at least two of which must be in philosophy. Courses required for candidacy are not counted toward satisfaction of this requirement. Choice of courses/seminars outside philosophy is determined in consultation with a student's adviser.
5. During the summer of their second year, students are required to attend a dissertation development seminar given by the department.
6. Dissertation work and defense: the third and fourth (and sometimes fifth) years are devoted to dissertation work.
 - a) *Dissertation Proposal*: by Spring Quarter of the third year, students select a dissertation topic, a reading committee, and some possible thesis relative to that topic. The topic and thesis should be sketched in a proposal of three to five pages, plus a detailed, annotated bibliography indicating familiarity with the relevant literature. The proposal should be approved by the reading committee before the meeting on graduate student progress late in Spring Quarter.
 - b) *Departmental Oral*: during Autumn Quarter of the fourth year, students take an oral examination, called the "Departmental Oral," based on at least 30 pages of written work, in addition to the proposal. The aim of the exam is to help the student arrive at an acceptable plan for the dissertation and to make sure that the student, thesis, topic, and adviser make a reasonable fit. In cases where such an exam is deemed inappropriate by the reading committee, the student may be exempted by filing a petition with the Director of Graduate Study, signed by the student and the members of the reading committee.
 - c) *Fourth-Year Colloquium*: no later than the Spring Quarter of the fourth year, students present a research paper in a seminar open to the entire department. This paper should be on an aspect of the student's dissertation research.

- d) *University Oral Exam*: Ph.D. students must submit a completed draft of the dissertation to the three-person reading committee at least one month before the student expects to defend the thesis in the University oral exam. If the student is given permission to go forward, the University orals take place approximately two weeks later. A portion of the exam consists of a student presentation based on the dissertation and is open to the public. A closed question period follows. If the draft is ready by Autumn Quarter of the fourth year, the student can request that the University oral count as the department oral.

SPECIAL GRADUATE PROGRAMS

The department recognizes that some students may need to spend a large amount of time preparing themselves in some other discipline related to their philosophical goals, or in advanced preparation in some area within philosophy. In such circumstances, the department may be willing to waive some of the Ph.D. requirements. Such an exemption is not automatic; a program must be worked out with an adviser and submitted to the department some time in the student's first year. This proposal must be in writing and must include:

1. The areas to be exempted (see below).
2. A program of additional courses and seminars in the special area (usually at least 12 units).
3. A justification of the program that considers both intellectual coherence and the student's goals.

The department believes there is plenty of room for normal specialization within the program as it stands, and that all students specialize to some extent. Thus, the intent is not to exempt courses on a one-to-one basis, but only to grant exemptions when a student plans an extensive and intensive study of some relevant area.

Special program students may be exempted from no more than two of the following:

1. One additional item from the items listed above in requirement 1(a)
2. PHIL 150 (formerly 159); but in this case, a student must take PHIL 50 (formerly 57)
3. The breadth requirement

If a student's special program involves substantial course work outside of philosophy then, with the approval of the adviser, the student may petition the department to reduce requirement 1(d) (the Philosophy unit requirement for the first two years). Normally this requirement is not reduced below 32 units.

PH.D. MINOR

To obtain a Ph.D. minor in Philosophy, students must follow these procedures:

1. Consult with the Director of Graduate Study to establish eligibility, and select a suitable adviser.
2. Give to the department academic assistant a signed copy of the program of study (designed with the adviser) which offers:
 - a) 30 units of courses in the Department of Philosophy with a letter grade of 'B-' or better in each course. No more than 3 units of directed reading may be counted in the 30-unit requirement.
 - b) At least one course or seminar numbered over 99 to be taken in each of these five areas:
 - 1) Logic
 - 2) Philosophy of science
 - 3) Ethics, value, theory, and moral and political philosophy
 - 4) Metaphysics, epistemology, and philosophy of language
 - 5) History of philosophy
 - c) Two additional courses numbered over 199 to be taken in one of those (b) five areas.
3. A faculty member from the Department of Philosophy (usually the student's adviser) serves on the student's doctoral oral examination committee and may request that up to one third of this examination be devoted to the minor subject.
4. Paperwork for the minor must be submitted to the department office before beginning the program.

INTERDEPARTMENTAL PROGRAMS

GRADUATE PROGRAM IN HUMANITIES

The Department of Philosophy also participates in the Graduate Program in Humanities leading to the joint Ph.D. degree in Philosophy and Humanities. It is described in the "Interdisciplinary Studies in Humanities" section of this bulletin.

GRADUATE PROGRAM IN COGNITIVE SCIENCE

Philosophy participates with the departments of Computer Science, Linguistics, and Psychology in an interdisciplinary program in Cognitive Science. It is intended to provide an interdisciplinary education, as well as a deeper concentration in philosophy, and is open to doctoral students. Students who complete the requirements within Philosophy and the Cognitive Science requirements receive a special designation in Cognitive Science along with the Ph.D. in Philosophy. To receive this field designation, students must complete 30 units of approved courses, 18 of which must be taken in two disciplines outside of philosophy. The list of approved courses can be obtained from the Cognitive Science program located in the Department of Psychology.

SPECIAL TRACK IN PHILOSOPHY AND SYMBOLIC SYSTEMS

Students interested in interdisciplinary work relating philosophy to artificial intelligence, cognitive science, computer science, linguistics, or logic may pursue a degree in this program.

Prerequisites—Ideally, admitted students have covered the equivalent of the core of the undergraduate Symbolic Systems Program requirements as described in that section of this bulletin, including courses in artificial intelligence (AI), cognitive science, linguistics, logic, and philosophy. The graduate program is designed with this background in mind. Students missing part of this background may need additional course work. Aside from the required course work below, the Ph.D. requirements are the same as for the regular program.

Courses of Study—The program consists of two years of courses and two years of dissertation work. Students are required to take the following courses in the first two years:

1. Six Philosophy courses:
 - a) two of the following: 360, 370, 380, 381
 - b) one course in the history of modern philosophy
 - c) two quarters of graduate logic courses from among 350A, 351A, 352A, 353A
 - d) at least one additional seminar in the general area of symbolic systems: e.g., 206, 286, 382, 386, 389
2. Five cognitive science and computer science courses:
 - a) at least two courses in cognitive psychology
 - b) two or three graduate courses in computer science, at least one in AI and one in theory
3. Three linguistics and computational linguistics courses:
 - a) graduate courses on natural language that focus on two of the following areas: phonetics and phonology, syntax, semantics, or pragmatics
 - b) one graduate course in computational linguistics, typically LINGUIST 239
4. At least two additional graduate seminars at a more advanced level, in the general area of the program, independent of department. These would typically be in the area of the student's proposed dissertation project.

The requirements for the third year are the same as for other third-year graduate students in philosophy: a dissertation proposal, creation of a dissertation committee, and at least three approved graduate courses and seminars. The dissertation committee must include at least one member of the Department of Philosophy and one member of the Program in Symbolic Systems outside the Department of Philosophy.

The requirement for the fourth year is the same as for the other graduate students in philosophy: a department oral on an initial draft of part of the dissertation, a fourth year colloquium, and a University oral exam when the dissertation is essentially complete.

JOINT PROGRAM IN ANCIENT PHILOSOPHY

This program is jointly administered by the Departments of Classics and Philosophy and is overseen by a joint committee composed of members of both departments. It provides students with the training, specialist skills, and knowledge needed for research and teaching in ancient philosophy while producing scholars who are fully trained as either philosophers (with a strong specialization in ancient languages and philosophy) or classicists (with a concentration in philosophy).

Students are admitted to the program by either department. Graduate students admitted by the Philosophy department receive their Ph.D. from the Philosophy department; those admitted by the Classics department receive their Ph.D. from the Classics department. For Philosophy graduate students, this program provides training in classical languages, literature, culture, and history. For Classics graduate students, this program provides training in the history of philosophy and in contemporary philosophy.

Each student in the program is advised by a committee consisting of one professor in each department.

Requirements for Philosophy Graduate Students:

These are the same as the proficiency requirements for the Ph.D. in Philosophy with the following exceptions:

1. The student is exempted from the breadth requirement.
2. If the student has already taken two courses in modern philosophy, he/she does not need to take a course in modern philosophy to satisfy proficiency requirement 1.a.2.

One year of Greek is a requirement for admission to the program. If students have had a year of Latin, they are required to take 3 courses in second- or third-year Greek or Latin (at least one of which must be in Latin). If they have not had a year of Latin, they are then required to complete a year of Latin, and take two courses in second- or third-year Greek or Latin.

Students are also required to take at least three courses in ancient philosophy at the 200 level or above (one of which must be in the Classics department and two of which must be in the Philosophy department).

GRADUATE DEGREES IN HISTORY AND PHILOSOPHY OF SCIENCE AND TECHNOLOGY

See the description in the “History and Philosophy of Science and Technology” section of this bulletin.

GRADUATE FELLOWSHIPS AND ASSISTANTSHIPS

A limited amount of fellowship support is available for Ph.D. students in philosophy. Students request aid by checking the appropriate box on the application form. Details of this program may be obtained from the department. Note that a condition of financial aid may be teaching assistance that goes beyond the Ph.D. requirement.

COURSES

WIM indicates that the course satisfies the Writing in the Major requirements. See the quarterly *Time Schedule* for revised listings.

INTRODUCTION TO THE HUMANITIES (IHUM)

The following Introduction to the Humanities courses are taught by Philosophy department faculty members. IHUM courses are typically available only to freshmen seeking to fulfill GER:1 requirements; see the “Introduction to the Humanities” section of this bulletin for further information. Prospective majors in Philosophy are advised to consider satisfying their GER:1b,c requirements by registering for the following IHUM courses.

IHUM 23A,B. The Fate of Reason—The fate of Socrates’ proposal that answers to problems about what to believe and how to act should be guided by reason. The fate of reason in different cultural traditions. The basis for commitments about how to live, God, the world, and people’s place within it. The power of reason to improve lives versus the notion that rational principles demand too much or are insufficient to reach important truths. GER:1b,1c (two quarter sequence)

IHUM 23A. 5 units, Win (Bobonich)

IHUM 23B. 5 units, Spr (A. Wood)

INTRODUCTORY

These courses acquaint the student with some of the most important problems, positions, and methods in Philosophy. Some are designed to give general preparation for further work in Philosophy. Some apply the philosopher’s approach to particular problems and subjects encountered in other areas of study.

PHIL 10. God, Self, and World: An Introduction to Philosophy—Traditional philosophical problems including the existence of God, how and what one can know about the world, how to understand the nature of the mind and its relation to the body, and whether people have free will. Paradoxes. Readings include classical and contemporary texts. GER:3a
5 units, Aut (Perry)

PHIL 11N. Skepticism—Stanford Introductory Seminar. Preference to freshmen. Historical and contemporary philosophical perspectives on the limits of human knowledge of a mind-independent world and causal laws of nature. The nature and possibility of a priori knowledge. GER:3a
3 units, Aut (De Pierris)

PHIL 12N. Introduction to Metaphysics—Stanford Introductory Seminar. Preference to freshmen. Metaphysics via Plato. GER:3a
3 units, Win (Moravcsik)

PHIL 15N. Paradoxes—Stanford Introductory Seminar. Preference to freshmen. Introduction to philosophical thinking through paradoxes about logic, meaning, rationality, and infinity. GER:3a
3 units, Aut (Crimmins)

PHIL 16N. Values and Objectivity—Stanford Introductory Seminar. Preference to freshmen. What is meant by the objectivity of beliefs and attitudes? Can the commitment of science to truthfulness be free of particular perspectives and subjective influence? Is objectivity a matter of degree relative to the kind of inquiry undertaken? Readings from philosophy of science, moral philosophy, and welfare economics. GER:3a
3 units, Win (Ryckman)

PHIL 20. Introduction to Moral Philosophy—(Same as ETHICSOC 20.) What is the basis of moral judgments? What makes right actions right, and wrong actions wrong? What makes a state of affairs good or worth promoting? Answers to classic questions in ethics through the works of traditional and contemporary authors. GER:3a
5 units, Aut (Schapiro)

PHIL 30. Introduction to Political Philosophy—(Enroll in POLISCI 3.)
5 units, Win (Stone)

PHIL 50. Introductory Logic—(Formerly 57.) Propositional and predicate logic; emphasis is on translating English sentences into logical symbols and constructing derivations of valid arguments. GER:2c
4 units, Win, Spr (Barker-Plummer)

PHIL 60. Introduction to Philosophy of Science—(Same as HPS 60.) Survey of 20th-century views on the nature of scientific knowledge. Logical positivism and Popper; the problem of induction; Kuhn, Feyerabend, and radical philosophies of science; subsequent attempts to rebuild moderate empiricist and realist positions. GER:3a
5 units, Spr (Tanona)

PHIL 61. Philosophy and the Scientific Revolution—(Same as HPS 61.) The relationship between the scientific revolution of the 17th century that resulted in the birth of modern science and the contemporaneous intellectual developments constituting the birth of modern philosophy. Readings focus on Galileo and Descartes. GER:3a
5 units, Aut (Friedman)

PHIL 77. Methodology in Ethics: Translating Theory into Practice—(Same as ETHICSOC 77.) Ideally, social policies are informed by ethical thought and reflection, but doing good in the world requires the active translation of moral theory and political philosophy into action. What kinds of empirical data are relevant to social decision making, and how should those data be collected, evaluated, and integrated into normative analysis? What assumptions about human nature are in play?

How should diverse cultural values be addressed? Case studies from biomedical science, business, and government. Required community service internship.

5 units, Spr (Staff)

PHIL 78. Medical Ethics—(Same as ETHICSOC 78.) Introduction to moral reasoning and its application to problems in medicine: informed consent, the requirements and limits of respect for patients' autonomy, surrogate decision making, euthanasia and physician-assisted suicide, and abortion. GER:3a,4c

4 units, Spr (Jaworska)

PHIL 80. Mind, Matter, and Meaning—Central topics in philosophy: free will and determinism, the relation of mind and body, and whether machines can think. Emphasis is on analytical writing skills. Prerequisite: introductory philosophy course. GER:3a,WIM

5 units, Aut (Lawlor), Spr (Crimmins)

PHIL 81. Philosophy and Literature Gateway—(Same as FRENGEN 181, ITALGEN 181.) Required gateway course for Philosophical and Literary Thought track offered through Philosophy and DLCL. Introduction to major problems at the intersection of philosophy and literature. Issues may include authorship, selfhood, truth and fiction, the importance of literary form to philosophical works, and the ethical significance of literary works. Texts include philosophical analyses of literature, works of imaginative literature, and works of both philosophical and literary significance. Authors may include Plato, Montaigne, Nietzsche, Borges, Beckett, Barthes, Foucault, Nussbaum, Walton, Nehamas, Pavel, and Pippin. GER:3a

4 units, Win (Landy, Anderson)

HISTORY OF PHILOSOPHY

100-103 are surveys of important figures and movements in Western philosophy. Other courses cover particular periods, movements, and figures in the history of philosophy. Prospective Philosophy majors should take as many as possible during the sophomore year.

PHIL 100. Greek Philosophy—Greek philosophical thought, covering Socrates, Plato, Aristotle, and the Hellenistic schools (the Epicureans, the Stoics, and the Skeptics). Topics: the nature of the soul, virtue and happiness, knowledge, and reality. GER:3a

4 units, Aut (Bobonich)

PHIL 102. Modern Philosophy, Descartes to Kant—Major figures in early modern philosophy in epistemology, metaphysics, and philosophy of mind. Writings by Descartes, Locke, Leibniz, Berkeley, Hume, and Kant. GER:3a

4 units, Win (De Pierris)

PHIL 103. 19th-Century Philosophy—Focus is on ethics and the philosophy of history. Works include Mill's *Utilitarianism*, Hegel's *The Philosophy of World History*, Marx's *Economic and Philosophic Manuscripts*, Kierkegaard's *The Sickness Unto Death*, and Nietzsche's *On the Genealogy of Morals*. GER:3a

4 units, Spr (A. Wood)

PHIL 107/207. Plato's Ontology and Mathematics—(Graduate students register for 207.) Plato's theories on parts of reality.

4 units, Win (Moravcsik)

PHIL 108/208. Plato's Ethics—(Graduate students register for 208; formerly 116/216.) Plato's ethics compared to modern ethics. Study of the human ideal.

4 units, Spr (Moravcsik)

PHIL 115/215. Problems in Medieval Philosophy: Scholastic Background to Kant—(Graduate students register for 215.) Aquinas, Baumgarten, and Kant on psychology, cosmology, and theology. What is the nature of the soul for Aquinas, and how is his answer related to Baumgarten? What is the origin of the world according to Aquinas, and how does Kant's approach differ? Can the existence of God be proven, and how does Baumgarten's answer depend on Aquinas? GER:3a

3-4 units, Win (R. Wood)

PHIL 117/217. Recovering the Original Aristotle—(Graduate students register for 217.) Did Aristotle have a coherent notion of substantiality, and if so, what key properties must substances have? The implications of Aristotle's theory of categories for his theories of substance.

4 units (Moravcsik) not given 2004-05

PHIL 120/220. Hume—(Graduate students register for 220.) Hume's theoretical philosophy, in particular, skepticism and naturalism, the theory of ideas and belief, space and time, causation and necessity, induction and laws of nature, miracles, a priori reasoning, the external world, and the identity of the self. GER:3a

4 units, Win (De Pierris)

PHIL 121/221. Descartes—(Graduate students register for PHIL 221.) Descartes's philosophical writings on rules for the direction of the mind, method, innate ideas and ideas of the senses, mind, God, eternal truths, and the material world. GER:3a

4 units, Aut (De Pierris)

PHIL 122/222. Hegel's Philosophy of Right—(Graduate students register for 222.) Introduction to Hegel's philosophy through his last major work, *Elements of the Philosophy of Right* (1821). Emphasis is on his philosophy of natural rights, morality, society, politics, and history. GER:3a

4 units (A. Wood) not given 2004-05

PHIL 125/225. Kant's First Critique—(Graduate students register for 225.) The founding work of Kant's critical philosophy, emphasizing contributions to metaphysics and epistemology and the attempt to limit metaphysics to objects of possible experience. Prerequisite: course in systematic issues in metaphysics or epistemology, or the history of modern philosophy. GER:3a

4 units, Spr (Anderson)

PHIL 126/226. Kant's Ethical Theory—(Graduate students register for 226.) Kant's moral philosophy, based primarily on the *Groundwork of Metaphysics of Morals*, the *Critique of Practical Reason*, and *The Metaphysics of Morals*. GER:3a

4 units (Schapiro) not given 2004-05

PHIL 127/227. Kant's Critique of the Power of Judgment—(Graduate students register for 227.) Kant's third and final critique investigates the transcendental grounds of aesthetic taste and the use of teleology in the study of nature, with the aim of unifying theoretical and practical reason in the critical system. The analytic of the beautiful, the role of taste and artworks in human life, and the methodology of teleological judgment which is to unite the teleology of nature and morals into a single system of practical reason. GER:3a

4 units, Win (A. Wood)

PHIL 132/232. Existentialism—(Graduate students register for 232.) The existentialist preoccupation with human freedom. What constitutes authentic individuality? What is one's relation to the divine? How can one live a meaningful life? What is the significance of death? A rethinking of the traditional problem of freedom and determinism in readings from Rousseau, Kierkegaard, and Nietzsche, and the extension of these ideas by Sartre, Beauvoir, and Camus, including their social and political consequences in light of 20th-century fascism and feminism. GER:3a

4 units (Anderson) not given 2004-05

PHIL 133/233. Major Figures in 20th-Century Philosophy—(Graduate students register for 233.) Husserl, Heidegger, Sartre, Gadamer, Wittgenstein, Quine, Davidson, and Rawls. Readings from their central writings. GER:3a

4 units (Føllesdal) not given 2004-05

PHIL 134/234. Phenomenology, Existentialism, and Hermeneutics—(Graduate students register for 234.) Husserl's phenomenology as a key to understanding contemporary continental philosophy including Heidegger's and Sartre's existentialisms, Gadamer's hermeneutics, and recent trends in contemporary German and French philosophy. The role of intentionality in contemporary debates in cognitive science. Husserl's *Ideas and Cartesian Meditations* read in full; selections from Heidegger, Sartre, and Gadamer. GER:3a

4 units, Aut (Føllesdal)

PHIL 135/235. Wittgenstein—(Graduate students register for 235.) The main themes and claims in Wittgenstein's later work concentrating on his views about meaning, mind, knowledge, the nature of philosophical perplexity, and the nature of philosophical progress in his *Philosophical Investigations*. Emphasis is on the relationship between the novel arguments of the *Investigations* and its ways of writing up the results of philosophical questioning. GER:3a
4 units, Spr (Hills)

PHIL 138/238. Recent European Philosophy—(Graduate students register for 238.) Themes and thinkers in 20th-century continental philosophy. Emphasis is on novel understandings of time, language, and cultural power. Thinkers include Heidegger, Benjamin, Saussure, and Foucault, together with precursors and contemporary admirers and critics. GER:3a
4 units, Spr (Hills)

LOGIC AND PHILOSOPHY OF SCIENCE

PHIL 150/250. Basic Concepts in Mathematical Logic—(Graduate students register for 250; formerly 159.) The concepts and techniques used in mathematical logic, primarily through the study of the language of first order logic. Topics: formalization, proof, propositional logic, quantifiers, sets, mathematical induction, and enumerability. GER:2c
4 units, Aut (Segeberg)

PHIL 151/251. First-Order Logic—(Graduate students register for 251; formerly 160A.) The syntax and semantics of sentential and first-order logic. Introduction to the basic concepts of model theory. Gödel's Completeness Theorem and its consequences: the Löwenheim-Skolem Theorem and the Compactness Theorem. Prerequisite: 150 (formerly 159) or consent of instructor. GER:2c
4 units, Win (Segeberg)

PHIL 152/252. Computability and Logic—(Graduate students register for 252; formerly 160B.) Approaches to effective computation: recursive functions, register machines, and various programming styles. Proof of their equivalence, discussion of Church's Thesis. Elementary recursion theory. These techniques are used to prove Gödel's Incompleteness Theorem for arithmetic, whose technical and philosophical repercussions are surveyed. Prerequisite: 151 (formerly 160A). GER:2c
4 units, Spr (Segeberg)

PHIL 154/254. Modal Logic—(Graduate students register for 254; formerly 169.) Introduction to the basics of modal logic, with an emphasis on action and information. Topics show the interdisciplinary nature of the field, among philosophy, computer science, linguistics, mathematics, and economic game theory. Prerequisite: 150 (formerly 159) or preferably 151 (formerly 160A). GER:2c
4 units, Spr (van Benthem)

PHIL 155/255. Concepts of Freedom—(Graduate students register for 255.) Historical and current concepts of freedom. The views of Hume, Kant, Mill, A.V. Dicey, and Hayek; recent works, including economic concepts of freedom. Recent work on free will as a properly empirical concept. GER:3a
4 units, Spr (Suppes)

PHIL 156. Popper, Kuhn, and Lakatos—(Same as EDUC 214.) These 20th-century philosophers of science raise fundamental issues dealing with the nature of scientific progress: the rationality of change of scientific belief, science versus non-science, role of induction in science, truth or verisimilitude as regulative ideals. Their impact in the social sciences and applied areas such as educational research. GER:3a
3 units, Spr (Phillips)

PHIL 157/257. Topics in the Philosophy of Logic—(Graduate students register for 257.)
4 units (Staff) not given 2004-05

PHIL 161. Set Theory—(Enroll in MATH 161.)
3 units, Win (White)

PHIL 162/262. Philosophy of Mathematics—(Graduate students register for 262.) Introduction to 20th-century approaches to the foundations and philosophy of mathematics. The background in mathematics, set theory, and logic. The schools and programs of logicism, predicativism, platonism, formalism, and constructivism. Readings from leading thinkers. Prerequisite: 151 (formerly 160A) or consent of instructor.
4 units, Spr (Staff)

PHIL 164/264. Central Topics in the Philosophy of Science: Theory and Evidence—(Graduate students register for 264.) The relation of theory to evidence and prediction. The problems of induction, confirmation and empirical under-determination. Theory choice. Hypothetico-deductivism, Bayesianism, and inference to the best explanation. The application of theory via models, and the semantic conception of scientific theories. Theoretical unification. GER:3a
4 units, Aut (Ryckman)

PHIL 165/265. Philosophy of Physics—(Graduate students register for 265.) The philosophy of space and time. Absolute and relational theories of space, time, and motion. Special relativity and the conventionality of simultaneity. Mach's principle and general relativity. Metric conventionalism. Space-time substantivalism, Einstein's hole argument, and the meaning of general covariance. Causally pathological space times and space-time singularities. GER:3a
4 units, Spr (Ryckman)

PHIL 167A/267A. Philosophy of Biology—(Graduate students register for 267A.) Philosophical questions raised by evolutionary biology. The concepts of fitness and adaptation. How are hypotheses about adaptation to be tested? How should organisms be classified? How can the history of the phylogenetic branching process be inferred? Are there laws in evolutionary biology? Are theories in biology reducible to theories in physics? What does evolutionary biology contribute to the understanding of human mind and culture? GER:3a
4 units, Aut (Tanona)

PHIL 167B/267B. Philosophy, Biology, and Behavior—(Graduate students register for 267B.) Continuation of 167A/267A. Further philosophical study of key theoretical ideas in biology, focusing on problems involving explanation of behavior. Topics: altruism, group selection, genetic determinism. Prerequisite: 167A, or some philosophy background and Biological Sciences or Human Biology core, or equivalent with consent of instructor.
4 units (Staff) not given 2004-05

ETHICS, AESTHETICS, AND SOCIAL AND POLITICAL PHILOSOPHY

PHIL 170/270. Ethical Theory—(Graduate students register for 270; same as ETHICSOC 170.) Major strands in contemporary ethical theory. Readings include Bentham, Mill, Kant, and contemporary authors. GER:3a
4 units, Win (Schapiro)

PHIL 171/271. Political Philosophy—(Graduate students register for 271; same as ETHICSOC 171.) What makes a society a just society? Focus is on the social contract tradition. Readings may include Hobbes, Locke, Rousseau, and Rawls. GER:3a
4 units, Spr (Schapiro)

PHIL 172. Kantian Value Theory—The role of autonomy, principled rational self-governance, in Kant's account of the norms to which humans beings are answerable as moral agents, citizens, empirical inquirers, and religious believers. Relations between moral values (goodness, rightness) and aesthetic values (beauty, sublimity). GER:3a
4 units (Hills) not given 2004-05

PHIL 176/276. Political Philosophy: The Social Contract Tradition—(Graduate students register for 276.) Why and under what conditions do human beings need political institutions? What makes them legitimate or illegitimate? What is the nature, source, and extent of the obligation to obey the legitimate ones, and how should people alter or overthrow the

others? Answers by political theorists of the early modern period: Hobbes, Locke, Rousseau, and Kant. GER:3a

4 units, Aut (Hills)

PHIL 177. Philosophical Issues Concerning Race and Racism—(Same as POLISCI 136.) Concepts of race, race consciousness, and racism, and their connections. What is race and what is its role in racism? How should ethnic and racial identities be viewed to secure the conditions in which humanity can be seen as a single moral community whose members have equal respect? What laws, values, and institutions best embody the balance between the competing goals of group loyalty, opposition to racism, and common humanity? Philosophical writings on freedom and equality, human rights, pluralism, and affirmative action. Historical accounts of group exclusion and various explanations. GER:3a,4b

4 units (Satz) not given 2004-05

PHIL 178. Ethics in Society Honors Seminar—(Same as ETHICSOC 190.) For students planning honors in Ethics in Society. Methods of research. Students present issues of public and personal morality; topics chosen with advice of instructor.

3 units, Win (Satz)

EPISTEMOLOGY, METAPHYSICS, PHILOSOPHY OF MIND, AND PHILOSOPHY OF LANGUAGE

PHIL 181/281. Philosophy of Language—(Graduate students register for 281.) Conceptual questions about language as a focus of contemporary philosophy both for its inherent interest and because philosophers see questions about language as behind perennial questions in other areas of philosophy including epistemology, the philosophy of science, metaphysics, and ethics. Key concepts and debates about meaning, truth, reference, and language use, with relations to psycholinguistics and formal semantics. Readings from philosophers such as Frege, Russell, Wittgenstein, Grice, and Kripke. Prerequisites: 80 and background in logic.

4 units, Aut (Crimmins)

PHIL 184/284. Theory of Knowledge—(Graduate students register for 284.) Competing theories of epistemic justification (foundationalism, coherentism, and externalism) against the background of radical skepticism. Readings from contemporary sources. Prerequisite: 80 or consent of instructor. GER:3a

4 units, Win (Lawlor)

PHIL 186/286. Philosophy of Mind—(Graduate students register for 286.) Debates concerning the nature of mental states, their relation to straightforwardly physical states of the human body, the manner in which they acquire their content, the ways people come to know about them in themselves and in others, and the roles they play in the explanation of human conduct.

4 units, Aut (Rey)

PHIL 187/287. Philosophy of Action—(Graduate students register for 287.) What is it to be an agent? Is there a philosophically defensible contrast between being an agent and being a locus of causal forces to which one is subject? What is it to act purposively? What is intention? What is it to act intentionally? What is it to act for a reason? Are the reasons for which one acts causes of one's action? What is it to act autonomously? Readings: Davidson, Frankfurt, and others. Prerequisite: 80. GER:3a

4 units, Win (Bratman)

PHIL 188. Personal Identity—People seem to remain the same despite the various changes they undergo during their lives. Why? The answer can profoundly influence one's beliefs about whether people are essentially bodies or minds, and whether one's own survival matters. Readings include John Locke, Thomas Reid, David Hume, Bernard Williams, and Derek Parfit. GER:3a

4 units (Perry) not given 2004-05

PHIL 189. Philosophical Applications of Cognitive Science—The relevance of recent discoveries about the mind to philosophical questions in metaphysics, epistemology and philosophy of science, and ethics. Questions include: is there a right way to carve up the world into categories? Are the rules of logic objective, or just the way we happen to think? Is there such a thing as objective right and wrong?

4 units (Staff) not given 2004-05

PHIL 190. Introduction to Cognitive Science—(Same as LINGUIST 144, SYMBSYS 100, PSYCH 130.) The history, foundations, and accomplishments of the cognitive sciences, including presentations by leading Stanford researchers in artificial intelligence, linguistics, philosophy, and psychology. Overview of the issues addressed in the Symbolic Systems major. GER:3b

4 units, Spr (Jurafsky, Richardson)

PHIL 193L. Montaigne—(Same as HUMNTIES 193L.) Preference to Humanities honors students and Philosophy majors. Philosophical and literary aspects Montaigne's *Essays* including the nature of the self and self-fashioning, skepticism, fideism, and the nature of Montaigne's philosophical project. Montaigne's development of the essay as a literary genre.

4 units, Win (Anderson)

PHIL 193Y. The Moral Status of Human Beings—(Same as HUMNTIES 193Y.) The conviction that human beings have a unique moral status among animals, plants, and things, and that all humans have equal moral status is at the heart of ethics. Views which question these beliefs, attempts to defend them, and their implications for practical ethical issues such as abortion, euthanasia, new reproductive technologies, and the treatment of animals.

4 units, Spr (Jaworska)

PHIL 194B. Undergraduate Seminar: Time and Free Will

4 units, Spr (Perry)

PHIL 194C. Undergraduate Seminar: Philosophy of Friendship—What philosophers say about friendship.

4 units, Aut (Moravcsik)

PHIL 194D. Undergraduate Seminar: Free Will and Moral Responsibility—Priority to majors. Enrollment limited to 12. Prerequisite: background in philosophy, 80.

4 units, Aut (Bratman)

PHIL 194E. Undergraduate Seminar: Beauty and Other Forms of Value—The nature and importance of beauty and the human capacity to discern and respond to it as discussed by philosophers and artists from different historical periods. Attempts to work out the relations between beauty and ethical values such as moral goodness, and cognitive values such as truth.

4 units, Win (Hills)

PHIL 196. Tutorial, Senior Year

5 units, Aut, Win, Spr (Staff)

PHIL 197. Individual Work, Undergraduate

1-15 units, Aut, Win, Spr (Staff)

PHIL 198. The Dualist—Weekly meeting of the editorial board of *The Dualist*, a national journal of undergraduate work in philosophy. Open to all undergraduates. May be taken 1-3 quarters. (AU)

1 unit, Aut, Win, Spr (Staff)

PHIL 199. Seminar for Prospective Honors Students—Open to juniors intending to do honors in philosophy. Methods of research in philosophy. Topics and strategies for completing honors project.

2 units, Spr (Staff)

PRIMARILY FOR GRADUATE STUDENTS

Graduate students should also consult previous entries in the catalog for courses with graduate student numbers.

PHIL 206S. Seminar in Foundations of Neuroscience—Topic this year is physical models of memory retrieval emphasizing associative networks and concepts of resonance.

4 units, Win (*Suppes*)

PHIL 223. Medieval Commentary on Aristotle's *De Anima*—Aristotle's view on mental representation, interpreted, refined, and criticized by Thomas Aquinas and other medieval philosophers. Reading of original texts in translation and of recent historical and systematic discussion.

3 units (*Føllesdal, Moravcsik, Suppes*) not given 2004-05

PHIL 224. Kant's Philosophy of Physical Science—Kant's *Metaphysical Foundations of Natural Science* (1786), published between the first (1781) and second (1787) editions of the *Critique of Pure Reason*, in the scientific and philosophical context provided by Newtonian natural philosophy and the Leibnizean tradition. The place of this work in the development of Kant's thought. Prerequisite: prior acquaintance with either Kant's theoretical philosophy or the contemporaneous scientific context, principally Newton, Leibniz, and Euler.

4 units (*Friedman*) not given 2004-05

PHIL 230. The Philosophical and Educational Thought of John Dewey—(Enroll in EDUC 304.)

4 units, Aut (*Phillips*)

PHIL 237. Nietzsche—Preference to Ph.D. students. Nietzsche's later works emphasizing *The Gay Science*, *Beyond Good and Evil*, and *On the Genealogy of Morals*. The overall shape of Nietzsche's philosophical and literary projects, and his core doctrines such as eternal recurrence, will to power, and perspectivism. Central problems such as the proper regulation of belief, and the roles of science, morality, art, and illusion in life.

4 units (*Anderson*) not given 2004-05

PHIL 239. Teaching Methods in Philosophy—For Ph.D. students in their second or third year who are teaching assistants for the department. Discussion of issues about the teaching of philosophy.

1-4 units, Aut, Win, Spr (*Staff*)

PHIL 240. Individual Work for Graduate Students

1-15 units, Aut, Win, Spr (*Staff*)

PHIL 241. Dissertation Development Seminar

3 units, Sum (*Staff*)

PHIL 242A. Methodological Problems in Population Biology—How hypotheses ought to be tested; how the data generated by a test ought to be interpreted. Examples involve hypotheses about natural selection and phylogenetic relationships. The use of model selection criteria in population biology such as the Akaike information criteria.

3 units (*Staff*) not given 2004-05

PHIL 243. Saving Phenomena—(Same as CLASSGEN 134/234.) The determination of theory by empirical evidence is at the heart of the philosophy of science. Readings include seminal works of Western science: Ptolemy's *Almagest*, focusing on theories of the Sun and the Moon; Galen's *On Natural Faculties*, focusing on the theory of the urinary bladder; Archimedes' *Planes in Equilibrium*, focusing on the theory of balance. Each represents a different use of empirical evidence in scientific theory, and combining evidence provides a richer theory of saving the phenomena. GER:3a

4 units (*Netz, Suppes*) not given 2004-05

PHIL 248. Medieval Latin Paleography—(Formerly 314.) The history of medieval scripts and editing medieval texts in philosophy, physics, and theology. Dating and placing Latin European medieval manuscripts. Medieval abbreviation, punctuation, and codicology. Class project: a French commentary on Aristotle's ethics preserved in a Florentine manuscript.

3-5 units, Spr (*R. Wood*)

PHIL 258. Minds and Machines—Readings on arguments concerning mechanical models of the mind including Turing machine models to which Gödel's incompleteness theorems are relevant, and connectionist (neural net) models. Prerequisites: 151 (formerly 160A), 152, or equivalents. Recommended: 389.

4 units, Win (*Feferman*)

PHIL 272. Kantian Value Theory—The role of autonomy, principled rational self-governance, in Kant's account of the norms to which humans beings are answerable as moral agents, citizens, empirical inquirers, and religious believers. Relations between moral values (goodness, rightness) and aesthetic values (beauty, sublimity).

4 units (*Hills*) not given 2004-05

PHIL 286B. Seminar on Lexical Semantics—How to specify the meanings of lexical terms. Fodor on atomism-holism. Do meanings have primarily psychological reality, or also ontological reality? Theories include instructor's own proposal.

4 units (*Moravcsik*) not given 2004-05

PHIL 288. Ontology and Realism—What entities really exist, what is it to commit oneself to things existing, and what grounds might there be for so committing oneself? Ordinary things, abstract objects, unobservables. Connections with larger questions of objectivity and realism.

4 units (*Crimmins*) not given 2004-05

PHIL 289. Seminar on the Language of Thought—The relation of recent research that favors the hypothesis that mental phenomena can be understood as computations over representations in a language of thought entokened in people's brains. How this program promises solutions to traditional problems in the philosophy of mind while leaving behind pretheoretic intuitions such as about *qualia* or consciousness. Readings include Rey, Fodor, Dennett, Searle, and Levine.

4 units (*Rey*) not given 2004-05

PHIL 298. Logic, Language, and Information—Logical systems for analyzing information structures, communication, and other cognitive actions. Special topics: systems for information update; logic and game theory. Prerequisite: 154 or an equivalent background in modal logic.

3 units (*van Benthem*) not given 2004-05

PHIL 313. Aristotle's Psychology and Philosophy of Mind—Primary reading is *De Anima*.

4 units, Win (*Bobonich*)

PHIL 318. Aristotle's *Ethics*—Aristotle's ethical views through the *Protrepticus* and the *Eudemian Ethics*.

4 units (*Bobonich*) not given 2004-05

PHIL 328. Fichte's Theory of Intersubjectivity—The founder of the German Idealist movement who adopted but revised Kant's project of transcendental philosophy basing it on the principle of awareness of free self-activity. The awareness of other selves and of ethical relations to them as a necessary condition for self-awareness. His writings from 1793-98 emphasizing the place of intersubjectivity in his theory of experience.

4 units, Aut (*A. Wood*)

PHIL 350A,B. Model Theory—(Enroll in MATH 290A,B; formerly PHIL 290A,B.)

3 units (*Staff*) not given 2004-05

PHIL 351A,B. Recursion Theory—(Enroll in MATH 291A,B; formerly PHIL 291A,B.)

3 units (*Staff*) not given 2004-05

PHIL 352A,B. Set Theory—(Enroll in MATH 292A,B; formerly PHIL 292A,B.)

3 units (*Staff*) not given 2004-05

PHIL 353A,B. Proof Theory—(Enroll in MATH 293A,B; formerly PHIL 293A,B.)

3 units, A: Win (*Feferman*), B: (*Staff*) not given 2004-05

PHIL 354. Topics in Logic—(Same as MATH 294; formerly PHIL 294.) Epsilon calculus. Syntax and semantics of first order epsilon calculus. Hilbert's epsilon substitution method. Recent progress and open problems. Prerequisites: 151 (formerly 160A), 152, or equivalents.
3 units (Staff) not given 2004-05

PHIL 356. Applications of Modal Logic—Applications of modal logic to knowledge and belief, and actions and norms. Models of belief revision to develop a dynamic doxastic logic. A workable modeling of events and actions to build a dynamic deontic logic on that foundation.
3 units, Win (Segeberg)

PHIL 359. Advanced Modal Logic—(Formerly 269.) Mathematical analysis of modal systems, including bisimulation and expressive power, correspondence theory, algebraic duality, completeness and incompleteness, and extended modal logics, up to guarded fragments of first-order logic, fixed-point logics, and second-order logic. Prerequisite: 151 (formerly 160A), 154/254, or an equivalent background.
4 units, Spr (van Benthem)

PHIL 360. Core Seminar in Philosophy of Science—(Formerly 260.) For first- and second-year Philosophy Ph.D. students.
4 units, Win (Friedman, Ryckman)

PHIL 365. Seminar in Philosophy of Science: Structural Realism—This recent version of scientific realism and its differences with standard realism and antirealism. Historical antecedents in Hertz, Poincaré, Russell, Eddington, and Weyl.
4 units, Spr (Ryckman)

PHIL 370. Core Seminar in Ethics—(Formerly 270.) For first- and second-year Philosophy Ph.D. students.
4 units (Satz) not given 2004-05

PHIL 372. Selected Problems in Kantian Ethics
4 units, Spr (Schapiro)

PHIL 374. Valuing—What is it to value something? How is valuing related to desiring, judging something to be valuable, caring, the emotions, or having policies? What is the relation between valuing and the will? Are there reasons for valuing things or pursuing what we value? Readings from contemporary literature including Bratman, Frankfurt, Harman, Helm, Raz, Scheffler, and Velleman.
4 units, Win (Jaworska)

PHIL 377. Topics in Democratic Theory—(Same as POLISCI 333.) Modern approaches to democratic theory including liberal, communitarian, republican, and participatory theories beginning with the works of Locke, Rousseau, and Mill. Writers: John Rawls, Ronald Dworkin, Jeremy Waldron, Joshua Cohen, Habermas, Petit, Iris Marion Young, Ian Shapiro, and Amy Gutman.
3-5 units, Win (Satz, Ferejohn)

PHIL 379. Seminar in Metaethics—Theories about the meaning of ethical terms and the content of ethical judgments. Do these theories fit with best accounts of human agency and practical deliberation? Readings from recent literature. Prerequisites 173B/273B, 181, 187/287 or equivalent.
4 units (Hussain) not given 2004-05

PHIL 380. Core Seminar in Metaphysics and Epistemology—(Formerly 280.) For first- and second-year Philosophy Ph.D. students.
4 units (Crimmins) not given 2004-05

PHIL 381. Core Seminar in Philosophy of Language—(Formerly 281.) For first- and second-year Philosophy Ph.D. students.
4 units, Aut (Perry)

PHIL 386. Self, Meaning, and Consciousness—Issues about the sorts of meaning mental states have, and how this relates to issues of self-knowledge, self-identity, and consciousness.
4 units, Win (Perry)

PHIL 383. Justification and Entitlement—The idea of rationalist and empiricist philosophers that one is entitled to beliefs without having to justify them. What might epistemic entitlement be; does anyone have it, and what is it good for? Readings include Goldman, Burge, Peacocke, Sellars, and Williams.
4 units, Win (Lawlor)

PHIL 384. Seminar in Metaphysics and Epistemology: the Concept of a Priori
4 units, Aut (Moravcsik)

PHIL 385. Philosophy of Language Seminar
4 units, Spr (Crimmins)

PHIL 387. Practical Reason—Contemporary work on practical rationality.
4 units, Spr (Bratman)

PHIL 389. Mind and Brain—Nine seminars from October 11-29 analyzing contemporary work in neuroscience and its bearing on philosophical problems of mind. Guest speakers include Anne Fagot-Largeault and Jean-Pierre Changeux from Collège de France. Credit requires a paper to be presented in November and attendance at an organizational meeting on September 29.
4 units, Aut (Føllesdal, Suppes)

PHIL 450. Thesis
1-15 units, Aut, Win, Spr (Staff)



PHYSICS

Emeriti: (Professors) Stanley S. Hanna, William A. Little, Walter E. Meyerhof, David M. Ritson, H. Alan Schwetman, Mason R. Yearian; *(Professor, Research)* John P. Turneaure; *(Professor, Courtesy)* Peter A. Sturrock

Chair: Stanley G. Wojcicki

Associate Chair: Robert Wagoner

Director of Graduate Study: Renata Kallosh

Director of Undergraduate Study: Patricia Burchat

Professors: Roger Blandford, Patricia Burchat, Blas Cabrera, Steven Chu (on leave), Savas G. Dimopoulos, Sebastian Doniach, Alexander L. Fetter, Steven Kahn, Renata E. Kallosh, Aharon Kapitulnik, Mark Kasevich, Steven A. Kivelson, Robert B. Laughlin, Andrei D. Linde, Peter F. Michelson, Douglas D. Osheroff, Vahé Petrosian, Zhi-Xun Shen, Stephen Shenker, Leonard Susskind, Robert V. Wagoner, Stanley G. Wojcicki, Shoucheng Zhang

Associate Professors: Giorgio Gratta, Shamit Kachru, Roger W. Romani, Eva Silverstein

Assistant Professors: Sarah Church, David Goldhaber-Gordon, Hari Manoharan, Scott Thomas

Professors (Research): John A. Lipa, Phillip H. Scherrer, Todd I. Smith

Courtesy Professors: Richard Taylor, Richard N. Zare

Lecturers: Alexander Kosovichev, Gregorz M. Madejski, Richard L. Pam

Consulting Professors: Ralph DeVoe, Barbara Jones, Alan Title

Visiting Professors: Gerald Fisher, Allen Tucker, Jan Zaanen

Department Offices: 382 Via Pueblo Mall

Mail Code: 94305-4060

Phone: (650) 723-4344

Web Site: <http://www.stanford.edu/dept/physics>

Courses in Physics have the subject code PHYSICS. For a complete list of subject codes, see Appendix.

The Russell H. Varian Laboratory of Physics, the nearby W. W. Hansen Experimental Physics Laboratory (HEPL), the E. L. Ginzton Laboratory, and the Geballe Laboratory for Advanced Materials (GLAM) together house a range of physics activities from general courses through advanced research. At the Stanford Free Electron Laser Center, located in HEPL, tunable picosecond optical beams are available for materials and biomedical research at wavelengths that extend from the visible to the far infrared. Ginzton Lab houses research on optical systems, including quantum electronics, metrology, optical communication and development of advanced lasers. GLAM houses research on novel and nano-patterned materials, from high-temperature superconductors and magnets to organic semiconductors, subwavelength photon waveguides, and quantum dots. GLAM also supports the broader materials community on campus with a broad range of characterization tools, and will be the site for Stanford's new Nanocharacterization Lab.

The Stanford Linear Accelerator Center (SLAC) is just a few miles from the Varian Laboratory. SLAC is a high-energy physics lab with a two-mile-long linear accelerator that can accelerate electrons and positrons up to 50 GeV, and produce highly polarized electron beams. The PEP-II asymmetric-energy electron-positron storage ring is used to study CP violation in the B meson system. The Stanford Synchrotron Radiation Laboratory (SSRL) uses intense x-ray beams produced with another smaller storage ring on the SLAC site.

The Ginzton Laboratory, HEPL, GLAM, SLAC, and SSRL are listed in the "Academic Programs and Centers, Independent Research Laboratories, Centers, and Institutes" section of this bulletin. Students may also be interested in research and facilities at two other independent labs: the Center for Integrated Systems, focused on electronics and nanofabrication; and the Clark Center, a new interdisciplinary biological sciences laboratory.

The Physics Department and SLAC have together launched the Kavli Institute for Particle Astrophysics and Cosmology, a new institute serving

as a focus of Stanford research in this interdisciplinary area. Substantial increase in the associated faculty, and in student opportunities for research in astrophysics and cosmology, is under way. Stanford is a member of the Hobby-Eberly Telescope Consortium, operating an innovative 10.4 meter telescope at McDonald Observatory in Texas. Students may also participate in research using this instrument. A particle astrophysics program of searches for dark matter, the CDMS (cryogenic dark matter search) experiment, is operated in an underground laboratory on the Stanford campus and in the Soudan mine in Minnesota.

The Stanford Institute for Theoretical Physics is devoted to the investigation of basic structure of matter (string theory, M-theory, quantum cosmology, condensed matter physics).

The Physics Library, a center for the reading and study of physics and astronomy at all levels, includes print and electronic access to current subscriptions and back sets of important journals together with textbooks, dissertations, scholarly monographs, and the collected works of the most eminent physicists.

Course work is designed to provide students with a sound foundation in both classical and modern physics. Students who wish to specialize in astronomy, astrophysics, or space science should also consult the "Astronomy Course Program" section of this bulletin.

Three introductory series of courses include labs in which undergraduates carry out individual experiments. The Intermediate and Advanced Physics Laboratories offer facilities for increasingly complex individual work. Laboratories provide students with a sound basis for more advanced laboratory work, including the conception, design, and fabrication of laboratory equipment. Undergraduates are also encouraged to participate in research; most can do this through the honors program and/or the summer research program.

Graduate students find opportunities for research in the fields of astrophysics, atomic physics/laser science, biophysics, coherent optical radiation, condensed matter physics, cosmology, high energy physics, intermediate energy physics, low temperature physics, materials research, novel imaging technologies, particle astrophysics, quantum electronics, and theoretical physics. Faculty advisers are drawn from multiple departments, including Physics, Applied Physics, Materials Science and Engineering, Electrical Engineering, and Biological Sciences. Opportunities for research are also available with the faculty at SLAC in the areas of theoretical and experimental particle physics, particle astrophysics, cosmology, and accelerator design.

The number of graduate students admitted to the Department of Physics is strictly limited. Students should submit applications by December 14 for the following Autumn Quarter. Graduate students may normally enter the department only at the beginning of Autumn Quarter.

UNDERGRADUATE PROGRAMS

The study of physics is undertaken by three principal classes of undergraduates: those including physics as part of a general education; those preparing for careers in professional fields that require a knowledge of physics, such as medicine or engineering; and those preparing for teaching or research careers in physics or related fields. Physics courses numbered below 200 are intended to serve all three of these groups. The courses numbered above 200 meet the needs mainly of the third group, but also of some students majoring in other branches of science and in engineering.

ENTRY-LEVEL SEQUENCES

The Department of Physics offers three year-long entry level physics sequences, the PHYSICS 20, 50 (formerly 40), and 60 series. The first of these is non-calculus-based, and is intended primarily for those who are majoring in the biological sciences. Such students with AP credit, particularly those who are considering research careers, may wish to consider taking the physics series, however, as it provides adequate depth and emphasis on problem solving to be of significantly more value in biological research which today involves considerable physics based technology.

For those intending to major in engineering or the physical sciences, or simply wishing a stronger background in physics, the department offers the PHYSICS 50 and 60 series. Either of these will satisfy the entry level physics requirements of any Stanford major. Both cover the same topics in three terms, but the 60 series is intended for those who have already taken a Physics course at the level of the 50 series, or at least have a strong background in mechanics as well as a strong background in calculus. The 50 series begins with the topics of light and heat in PHYSICS 51 and proceeds to mechanics in 53 and electricity and magnetism in 55. It is recommended that most students begin this sequence in the Winter Quarter with mechanics in PHYSICS 53. Only those who have had strong physics preparation in high school (e.g., a score of at least 4 on the Physics Advanced Placement B or C exam) are recommended to start with PHYSICS 51 in Autumn Quarter.

BACHELOR OF SCIENCE

A calculus-based entry level series is required, either PHYSICS 61, 63, 64, 65, and 67 or 51, 52, 53, 55, and 56 (or preferably 67 rather than 56). In addition, the following more advanced courses are required: 70, 105, 107 (WIM), 108, 110, 120, 121, 130, 131, 170, and 171; MATH 51, 52, 53, 131; one additional Mathematics course numbered 100 or higher, or PHYSICS 112. MATH 51H, 52H, and 53H may substitute for MATH 51, 52, and 53. It is strongly recommended that students intending to complete a Ph.D. in Physics also take PHYSICS 113, 134 and one or more of the following, depending upon their interests: 160, 161, 172, 181, 204 and/or 262. PHYSICS 113 is designed to be taken in parallel with 110. The department advises the study of some computer science, for example, CS 106. Mathematics and Physics courses taken to satisfy the department's major requirements cannot be taken on a credit/no credit basis. Prospective Physics majors are also recommended to take PHYSICS 59, Current Research Topics.

To decide which introductory sequence is appropriate, students contemplating majoring in Physics are urged to consult with the instructor of PHYSICS 61 or 51, or the Undergraduate Program Coordinator, at the earliest possible date to see which sequence is the most suitable. Students who begin taking an entry level Physics course after their freshman year and wish to major in Physics are generally advised to take the PHYSICS 61, 63, 65 sequence, provided they have previously taken MATH 41.

Undergraduates are offered help with physics problems in the department tutoring center, the Reference Frame, which is staffed Monday through Thursday.

REQUIRED COURSES FOR MAJORS

INTRODUCTORY SEQUENCE

<i>Course No. and Subject</i>	<i>Qtr. and Units</i>
PHYSICS 51. Light and Heat	A 4
PHYSICS 52. Light and Heat Lab	A 1
PHYSICS 53. Mechanics	W 4
PHYSICS 55. Electricity and Magnetism	S 4
PHYSICS 56. Electricity and Magnetism Lab	S 1
(PHYSICS 67 is recommended for prospective majors)	S 2
<i>or</i>	
PHYSICS 61. Mechanics	A 4
PHYSICS 63. Electromagnetism	W 4
PHYSICS 64. Electromagnetism Lab	W 1
PHYSICS 65. Thermodynamics and Optics	S 4
PHYSICS 67. Introduction to Laboratory Physics	S 2
<i>and</i>	
MATH 51, 52, 53. Multivariable Math (or H series)	A,W,S 15
PHYSICS 59. Current Research Topics (recommended)*	A 1

INTERMEDIATE SEQUENCE

PHYSICS 70. Modern Physics	A 4
PHYSICS 105. Physics Laboratory I: Analog Electronics	A 3
PHYSICS 107. Physics Laboratory II: Analysis (WIM)	W 4
PHYSICS 108. Physics Laboratory III: Project	S 3
PHYSICS 110. Intermediate Mechanics	S 4
PHYSICS 112. Math Methods of Physics (recommended)**	W 4
PHYSICS 113. Computational Physics (recommended)*	S 4
PHYSICS 120,121. Intermediate Electricity and Magnetism	W,S 8
<i>and</i> MATH 131. Partial Differential Equations	A,W,S 3

ADVANCED SEQUENCE

PHYSICS 130,131. Quantum Mechanics	A,W 8
PHYSICS 134. Advanced Topics in Quantum Mechanics*	S 4
PHYSICS 170,171. Statistical Mechanics	A,W 8
PHYSICS 290. Research Activities at Stanford*	A 1-3
<i>and</i> one advanced Mathematics elective (100 level or higher) or PHYSICS 112	

* These courses are not required, but 113, 134, and 290 are recommended for students who intend to complete a Ph.D. in Physics.

** Those wishing to do physics theory in graduate school may wish to take a collection of math courses in the Department of Mathematics rather than PHYSICS 112.

CONCENTRATION IN PHYSICS

The primary purpose of concentrations in the Physics major is to provide consistent and more formal advising to students who want to concentrate in a particular area of physics during their undergraduate education, or prepare for future studies (e.g., graduate studies) in a particular area of physics. Physics majors are not required to choose a concentration and a concentration does not add any formal requirements to the Physics major. Upon graduation, students will receive a certificate of completion of a concentration.

Students seeking further advice on a given concentration should contact the professor whose name appears next to the respective title of each section below.

A. THEORETICAL PHYSICS (Andrei Linde)

At least four, one quarter courses selected from the following courses, or three courses plus an honors thesis:

Course No. and Subject

PHYSICS 204. Advanced Seminar in Theoretical Physics
PHYSICS 212. Statistical Mechanics
PHYSICS 230, 231, 232. Quantum Mechanics
PHYSICS 252. Introduction to High Energy Physics
PHYSICS 260. Introduction to Astrophysics and Cosmology
PHYSICS 262. Introduction to Gravitation
PHYSICS 330, 331, 332. Quantum Field Theory
PHYSICS 351, 352. Elementary Particle Physics
PHYSICS 362. Advanced Extragalactic Astrophysics and Cosmology
PHYSICS 364. Advanced Gravitation

Notes to students taking this concentration:

1. No more than one of the courses should be taken for CR/NC.
2. Students should take either the undergraduate Quantum Mechanics series (PHYSICS 130-132) or the graduate series (PHYSICS 230-232), but not both for credit.
3. Students should discuss the choice of courses with members of the Institute for Theoretical Physics and/or their major adviser.

B. APPLIED PHYSICS (Hari Manoharan)

At least four, one quarter courses selected from the following courses, or three courses plus an honors thesis:

Solid State:

APPPHYS 172. Physics of Solids I
APPPHYS 270. Magnetism and Long Range Order in Solids
MATSCI 195. Waves and Diffraction in Solids

Biophysics:

APPPHYS 192. Introductory Biophysics

Lasers:

PHYSICS 181. Introduction to Modern Optics
APPPHYS 231A. Introduction to Lasers

Lab Methods:

APPPHYS 207, 208. Laboratory Electronics, Analog and Digital
APPPHYS 304. Lasers Laboratory

C. BIOPHYSICS (David Goldhaber-Gordon)

We recommend that Physics majors interested in pursuing a career in biophysics consider a minor in Biological Sciences.

D. ASTROPHYSICS (Roger Romani, Sarah Church)

Requirements:

PHYSICS 100. Introduction to Observational and Laboratory Astronomy
 PHYSICS 160. Introduction to Stellar and Galactic Astrophysics
 PHYSICS 161. Introduction to Extragalactic Astrophysics and Cosmology

Plus one elective from below or an honors thesis:

PHYSICS 211. Continuum Mechanics
 PHYSICS 260. Introduction to Astrophysics and Cosmology
 PHYSICS 262. Introduction to Gravitation
 PHYSICS 312. Basic Plasma Physics
 (prerequisites are PHYSICS 210 and PHYSICS 220)

E. GEOPHYSICS (Rosemary Knight, Geophysics)

At least four, one quarter courses selected from the following courses, or three courses plus an honors thesis:

GEOPHYS 102. Geosphere
 GEOPHYS 112. Exploring Geosciences with MATLAB
 GEOPHYS 140. Introduction to Remote Sensing
 GEOPHYS 150. General Geophysics and Physics of the Earth
 GEOPHYS 180. Geophysical Inverse Problems
 GEOPHYS 182. Reflection Seismology
 GEOPHYS 190. Near-Surface Geophysics
 GEOPHYS 262. Rock Physics
 GEOPHYS 288. Crustal Deformation

INDIVIDUALLY DESIGNED MAJOR PROGRAM IN TEACHING PHYSICAL SCIENCE

This major, a joint effort of the Department of Physics and the Stanford Teacher Education Program, is designed for students to prepare themselves as high school teachers of physics and general science. Students complete 45-47 units of Physics and related Mathematics courses, 40-43 units of course work in other sciences such as the life sciences, chemistry, and geosciences, and in general issues of science, and 9-15 units of concentration and depth courses. Total program units. 94-105. Students interested in this program should consult Professor Patricia Burchat, Director of Undergraduate Studies in Physics (burchat@stanford.edu, 725-5771), and Frederic Stout, coordinator of the STEP Coterminal Teaching Program in the School of Education (fstout@stanford.edu, 725-6321)

CORE PHYSICS COURSES:

<i>Course No. and Subject</i>	<i>Qtr. and Units</i>
<i>Mechanics:</i>	
PHYSICS 53. Mechanics or PHYSICS 61. Advanced Freshman Physics I	4
<i>Heat:</i>	
PHYSICS 51. Light and Heat PHYSICS 52. Light and Heat Lab or	
PHYSICS 65. Advanced Freshman Physics III PHYSICS 67. Advanced Freshman Physics Lab	5-6
<i>Electricity and Magnetism:</i>	
PHYSICS 55. Electricity and Magnetism PHYSICS 67. Advanced Freshman Physics Lab or	
PHYSICS 63. Advanced Freshman Physics II PHYSICS 64. Electricity and Magnetism Lab and	
PHYSICS 105. Electronics for Physicists (Lab)	8-9
<i>Wave Motion:</i>	
PHYSICS 107. Laboratory Seminar. Optics (WIM)	3
<i>Modern Physics:</i>	
PHYSICS 70. Modern Physics	4
<i>Applications:</i>	
PHYSICS 59. Current Research Topics	2
<i>Mathematics (Physics departmental requirement):</i>	
MATH 51, 52, 53. Multivariable Calculus and a course in Statistics (choose one):	
STATS 110. Statistical Methods in Engineering and the Physical Sciences STATS 116. Theory of Probability STATS 141. Biostatistics STATS 166. Statistical Methods in Computational Genetics STATS 191. Introduction to Applied Statistics	18-20
Total	45-47

ADDITIONAL SCIENCE BREADTH COURSES

Life Sciences:
 BIOSCI 41. Evolution, Genetics, and Ecology
 BIOSCI 42. Biochemistry, Molecular Biology, and Cell Biology
 BIOSCI 43. Development and Physiology of Organisms
 or
 HUMBIO 2A,B, 3A,B, 4A,B 15

Chemistry:
 CHEM 31. Chemical Principles
 CHEM 33. Structure and Reactivity 8

Geosciences:
 EARTHSYS 10. Introduction to Earth Systems
 PHYSICS 15. The Nature of the Universe
 or PHYSICS 16. Cosmic Horizons 8

General Issues of Science:
 STS 101. Science, Technology, and Contemporary Society
 or HUMBIO 2S, 3S, 4S
 and EDUC 180. Directed Reading in History of Science
 and ENGR 103. Public Speaking and Presentation Development 9-12

CONCENTRATION AND DEPTH COURSES

3 courses (100 level or above) in a single area of concentration	9-15
Total units for general science	49-58
Total units for the Physical Science program	94-105

This individually designed major program in Physical Science includes all the elements of a Program of Subject Matter Preparation for Secondary Teachers of Physics and General Science that has been approved by the California Commission on Teacher Credentialing (CCTC). Students who complete the program are exempt from taking the CSET examination in Physics and General Science for admission to the Stanford Teacher Education Program (STEP) or any other accredited secondary teacher education program in California. Full details of the CCTC-approved program may be found at <http://ed.stanford.edu/suse/programs-degrees/program-co-terminal-step.html>. *Note:* the Stanford individually designed major program in Physical Science requires course work beyond the CCTC-approved program, specifically 9-15 units of depth courses in a field of concentration: Physics, Astrophysics, Biological Sciences, Chemistry, Earth Sciences, Human Biology, or Computational Mathematics. See the adviser in the Physics department or the School of Education for more details.

MINORS

Students who take the 20 or 50 series at Stanford in support of their major may count those units towards the minor. Those who have fulfilled Physics requirements at the 20 or 50 series level by enrollment at another accredited university, or through advanced placement credits, may count credits towards 21 and 23, or 53 and 55, respectively. 25/26, or 51/52 for a technical minor, should be taken at Stanford even if similar material has been covered elsewhere. With the 21/23 or 53/55 exception noted above, all courses for the minor must be taken at Stanford University for a letter grade, and a grade of 'C' or better must be received for all units applied toward the minor. The minor declaration deadline is three quarters before graduation, i.e., beginning of Autumn Quarter if the student is graduating at the end of Spring Quarter.

MINOR IN PHYSICS

An undergraduate minor in Physics requires the following course work:

Non-Technical—For students whose majors do not require the PHYSICS 50 or 60 series:

<i>Course No.</i>	<i>Units</i>
PHYSICS 21, 22, 23, 24, 25, and 26	12
Any combination of Physics courses totaling 15 units or greater	15
Total	27

Technical—For students whose majors require the PHYSICS 50 or 60 series:

<i>Course No.</i>	<i>Units</i>
PHYSICS 51/52, 53, 55/56 or PHYSICS 61, 63/64, 65/67	14-15
PHYSICS 70	4
Any three courses above PHYSICS 100	9-12
Total	27-31

MINOR IN ASTRONOMY

Students wishing to pursue advanced work in astrophysical sciences should major in physics and concentrate in astrophysics. However, students outside of physics with a general interest in astronomy may organize their studies by completing one of the following minor programs.

An undergraduate minor in astronomy requires the following courses:

Non-Technical—For students whose majors do not require the PHYSICS 50 series:

<i>Course No.</i>	<i>Units</i>
PHYSICS 21, 23, 25/26	10
PHYSICS 50 or 100 (Observatory Lab)	3-4

Choose two courses from the following:

PHYSICS 15, 16, 17, 18	6
Total	19-20 (9-10 in addition to the 20 series)

Technical—For students whose majors require the PHYSICS 50 series:

<i>Course No.</i>	<i>Units</i>
PHYSICS 51/52, 53, 55	13
PHYSICS 70	4
PHYSICS 100 (Observatory Lab)	4

Choose two courses from the following:

PHYSICS 160,* 161,* 164*	6
Total	27 (14 in addition to the 50 series)

* With approval of the minor adviser and the chair of the Astronomy Course Program, 3 units of PHYSICS 169, Independent Study in Astrophysics, may be substituted for one course of astronomy (e.g., 160, 161, 164). This independent study can either be constituted as a directed reading program or participation in a research project. Students are also strongly encouraged to take the electricity and magnetism/optics lab of the appropriate Physics series (24, 56) for 1 additional unit.

To be accepted to the minor program, the student must obtain an adviser from the faculty in the Astronomy Course Program.

HONORS PROGRAM

The department offers a program leading to the degree of Bachelor of Science in Physics with Honors as follows:

1. Students must submit an Honors Program Proposal to the Undergraduate Program Coordinator once they find a physics project, either theoretical or experimental, in consultation with individual faculty members. Proposal forms are available from the Physics Undergraduate Center and must be submitted by November 1 of the year in which the students' degree will be conferred.
2. Credit for the project is assigned by the adviser within the framework of PHYSICS 205. The work done in the honors program may not be used as a substitute for regularly required courses.
3. Both a written report and a presentation of the work at its completion is required for honors. By mid-May, each honors candidate is required to present his or her project at the department's Honors Presentations. (This event is publicized and is open to the general public. The expectation is that the student's adviser, second reader, and all other honors candidates attend.)
4. The decision as to whether a given independent study project does or does not merit award of honors is made jointly by the student's honors adviser and the second reader for the written thesis. This decision is based on the quality of both the honors work and the other work in physics.

GRADUATE PROGRAMS

MASTER OF SCIENCE

The department does not offer a coterminal degree program, or a separate program for the M.S. degree, but this degree may be awarded for a portion of the Ph.D. degree work.

University requirements for the master's degree, discussed in the "Graduate Degrees" section of this bulletin, include registration for at least three quarters at full tuition as a graduate student and completion of 36 units of course work after the bachelor's degree. Among the department requirements are a grade point average (GPA) of at least 3.0 (B) in courses 210, 211, 212, 220, 221, 230, 231, 232, or their equivalents. Up to 6 of these required units may be waived on petition if a thesis is submitted.

DOCTOR OF PHILOSOPHY

The University's basic requirements for the Ph.D. are discussed in the "Graduate Degrees" section of this bulletin. The minimum department requirements for the Ph.D. degree in Physics consist of completing all courses listed below, and at least one quarter from each of two subject areas (among condensed matter, quantum optics and atomic physics, astrophysics and gravitation, and nuclear and particle physics) chosen from courses with numbers above 232, except 290 and 294. The requirements in the following list may be fulfilled by passing the course at Stanford or passing an equivalent course elsewhere: 210 or 211, 212, 220, 221, 230, 231, 290, 294. A grade point average (GPA) of at least 3.0 (B) is required in all the courses taken toward the degree.

All Ph.D. candidates must have math proficiency equivalent to the following Stanford math courses: 106, 113, 114, 131, 132.

Prior to making an application for candidacy, each student is required to pass a comprehensive qualifying examination on undergraduate physics. This closed book exam is given in the month of January immediately following the student's arrival at Stanford. This is a written examination held over two days, covering particle mechanics, electricity and magnetism, quantum mechanics, statistical mechanics, thermodynamics, special relativity, and general physics. A thesis proposal must be submitted during the third year. In order to assess the direction and progress toward a thesis, an oral report and evaluation are required during the fourth year. After completion of the dissertation, each student must take the University oral examination (defense of dissertation).

Three quarters of teaching (including a demonstrated ability to teach) are a requirement for obtaining the Ph.D. in Physics.

Students interested in applied physics and biophysics research should also take note of the Ph.D. granted independently by the Department of Applied Physics and by the Biophysics Program. Students interested in astronomy, astrophysics, or space science should also consult the "Astronomy Course Program" section of this bulletin.

PH.D. MINOR

Minors in Physics must take at least six courses numbered 210 to 232 among the 20 required units. All prospective minors must obtain approval of their Physics course program from the Physics Graduate Study Committee at least one year before award of the Ph.D.

FELLOWSHIPS AND ASSISTANTSHIPS

The Department of Physics makes an effort to support all its graduate students through fellowships, teaching assistantships, research assistantships, or a combination of sources. Information on application procedures is mailed with the admission information.

TEACHING CREDENTIALS

For information on teaching credentials, consult the "School of Education" section of this bulletin or address an inquiry to the Credential Administrator, School of Education.



COURSES

There are four series of beginning courses. One course from the teen series (11, 15, 16, 17, 19) is recommended for the humanities or social science student who wishes to become familiar with the methodology and content of modern physics. The 20 series (21, 22, 23, 24, 25, 26) is recommended for general students and for students preparing for medicine or biology. The 50 series (51, 52, 53, 55, 56) is for students of engineering, chemistry, geology, mathematics, or physics. The advanced freshman series (61, 63, 64, 65, 67) is for the well-prepared student and is the preferred introductory series for those Physics majors who have the appropriate background.

Both the 20 and 50 series consist of demonstration lectures on the fundamental principles of physics, problem work on application of these principles to actual cases, and lab experiments correlated to the lectures. Their objectives are not only to give information on particular subjects, but also to provide training in the use of the scientific method. The primary difference between the two series of courses is that topics are discussed more thoroughly and treated with greater mathematical rigor in the 50 series.

Courses beyond 99 are numbered in accordance with a three-digit code. The first digit indicates the approximate level of the course:

100	undergraduate courses
200	first-year graduate courses
300	more advanced courses
400	research, special, or current topics

The second digit indicates the general subject matter:

00	laboratory
10,20,30	general courses
40	nuclear physics
50	elementary particle physics
60	astrophysics, cosmology, gravitation
70	condensed matter physics
80	optics and atomic physics
90	miscellaneous courses

UNDERGRADUATE

WIM indicates that the course satisfies the Writing in the Major requirements.

ASTRONOMY

For further information on astronomy and astrophysics courses, consult the Astronomy Course Program.

PHYSICS 15,16,17. Topics in Modern Astronomy—Designed for, but not restricted to, undergraduates not majoring in the physical sciences. Emphasis is on aspects of modern astronomy, astrophysics, and cosmology. No mathematics beyond algebra used. Courses may be taken individually or in sequence.

PHYSICS 15. The Nature of the Universe—Introduction to the structure, origin, and evolution of the major components of the Universe: planets, stars, and galaxies. Emphasis is on the formation of the Sun and planets, the evolution of stars, and the structure and content of our galaxy. Topics: cosmic enigmas (dark matter, black holes, pulsars, x-ray sources), star birth and death, and the origins of and search for life in our solar system and beyond. GER:2a

3 units, Win (Cabrera)

PHYSICS 16. Cosmic Horizons—Introduction to the origin and evolution of our universe and its contents: stars, galaxies, quasars. The overall structure of the cosmos and the physical laws that govern matter, space, and time. Topics include the evolution of the cosmos from its primeval fireball, the origin of the elements and the formation of stars and galaxies, exotic astronomical objects (black holes, quasars, supernovae, and gamma ray bursts), dark matter, and the fate of the cosmos. GER:2a

3 units, Aut (Romani)

PHYSICS 17. Black Holes—Newton's and Einstein's theories of gravitation and their relationship to the predicted properties of black holes. Their formation and detection, and role in galaxies and high-energy jets. Hawking radiation and aspects of quantum gravity. GER:2a

3 units, Spr (Blandford, Wagoner)

PHYSICS 50. Astronomy Laboratory and Observational Astronomy—Introduction to observational astronomy with emphasis on the use of optical telescopes. Observations of stars, nebulae, and galaxies are pursued during laboratory sessions with 16- and 24-inch telescopes at the Stanford Observatory. Lectures and analysis are descriptive; no calculations or previous physics required. Limited enrollment. Lab. GER:2a

3 units, Aut (Church)

PHYSICS 85Q. Cosmology in the 21st Century—Stanford Introductory Seminar. Preference to sophomores. Current topics at the frontier of research in cosmology including dark matter, dark energy, the cosmic microwave background, inflation, matter-antimatter asymmetry, and the origin of the big bang.

1 unit, Spr (Thomas)

PHYSICS 100. Introduction to Observational and Laboratory Astronomy—Introduction to observational techniques in astronomy for physical science or engineering students. Emphasis is on the quantitative measurement of fundamental astronomical parameters such as distance, temperature, mass, composition of stars, galaxies, and quasars. Lecture and observation using the 0.4m and 0.6m telescopes at the Stanford Observatory. Limited enrollment. Prerequisites: one year of physics; prior or concurrent registration in 25, 65, or 70; and consent of instructor. GER:2a

4 units, Spr (Romani)

PHYSICS 160. Introduction to Stellar and Galactic Astrophysics—Physics of the sun. Evolution and death of stars. White dwarfs, novae, planetary nebulae, supernovae, neutron stars, pulsars, binary stars, x-ray stars, and black holes. Galactic structure: interstellar medium, molecular clouds, HI and HII regions, star formation and element abundances. Prerequisites: calculus and one year of college physics at the level of the PHYSICS 50 series or equivalent.

3 units, Win (Romani)

PHYSICS 161. Introduction to Extragalactic Astrophysics and Cosmology—Observations of the distances and compositions of objects on cosmic scales: galaxies, galaxy clusters, quasars, and diffuse matter at high redshift. Big bang cosmology, physical processes in the early universe, the origin of matter and the elements, inflation, and creation of structure in the universe. Observational evidence for dark matter and dark energy. Future of the universe. Prerequisites: calculus and one year of college physics at the level of the 50 series.

3 units, Spr (Petrosian)

PHYSICS 164. Planetary Systems: Dynamics and Origins—(Enroll in GES 222.)

3 units, Aut (Lissauer)

PHYSICS 169A,B,C. Independent Study in Astrophysics and Honors Thesis—Detailed study of a problem in astrophysics with one or more faculty members. While not all projects require three quarters, the sequence below suggests the format most projects are expected to follow. Projects may commence in Autumn, Winter, Spring, or Summer.

PHYSICS 169A. Independent Study in Astrophysics and Honors Thesis: Selection of the Problem—Selection of the problem to be studied and development of the theoretical apparatus or initial interpretation of the selected problem. Preparation of a detailed description of the problem and its background and a comprehensive discussion of the work planned in the subsequent two quarters.

1-9 units, Aut (Staff)

PHYSICS 169B. Independent Study in Astrophysics and Honors Thesis: Continuation of Project—Substantial completion of the required computations or data analysis for the research project.

1-9 units, Win (Staff)

PHYSICS 169C. Independent Study in Astrophysics and Honors Thesis: Completion of Project—Completion of research and writing of a detailed paper presenting methods used and results.

1-9 units, Spr (Staff)

PHYSICS

PHYSICS 11N. The Basic Rules of Nature—Stanford Introductory Seminar. Preference to freshmen. Physicists have developed successful descriptions of the basic behavior of matter on microscopic scales (inner space) and on scales characteristic of the universe as a whole (outer space). Despite these successes, deep mysteries remain. Elements of these successful descriptions including quantum mechanics, particle physics, and general relativity. Remaining mysteries and the leading approaches that physicists hope will unravel them including string theory and M theory. Discussions are semiquantitative. Term project paper. Prerequisite: high school physics or equivalent. GER:2a

3 units, Aut (Shenker)

PHYSICS 18N. Revolutions in Concepts of the Cosmos—Stanford Introductory Seminar. Preference to freshmen. Faculty led dialogue. Introduction to the evolution of our concept of the cosmos and its origin, from the Copernican heliocentric model of the solar system to our current view based on Hubble's discovery of expansion of the universe. Recent cosmological observations and the relevance to this topic of laboratory experiments in particle physics. One night of observations at the Stanford Observatory. Enrollment limited to 20 in one section. GER:2a

3 units, Spr (Wojcicki)

PHYSICS 19. How Things Work: An Introduction to Physics—Examines familiar objects such as microwave oven, refrigerator, and pop-up toaster, and uses them to present basic principles of physics in an approachable and understandable context. Emphasis on developing an intuitive picture. Make estimates of real quantities from simple calculations. Prerequisite: high school algebra and trigonometry. GER:2a

3 units, Win (I. R. Fisher)

PHYSICS 21. Mechanics and Heat—For biology, social science, and premedical students. Introduction to Newtonian mechanics, fluid mechanics, theory of heat. Calculus is used as a language and developed as needed. Prerequisite: working knowledge of elementary algebra and trigonometry. GER:2a

3 units, Aut (Wojcicki)

PHYSICS 21S. Mechanics and Heat with Laboratory—Equivalent to 21 and 22. GER:2a

4 units, Sum (G. Fisher)

PHYSICS 22. Mechanics and Heat Laboratory—Pre- or corequisite: 21.

1 unit, Aut (Staff)

PHYSICS 23. Electricity and Optics—Electric charges and currents, magnetism, induced currents; wave motion, interference, diffraction, geometrical optics. Prerequisite: 21. GER:2a

3 units, Win (Church)

PHYSICS 24. Electricity and Optics Laboratory—Pre- or corequisite: 23.

1 unit, Win (Staff)

PHYSICS 25. Modern Physics—Introduction to modern physics. Relativity, quantum mechanics, atomic theory, radioactivity, nuclear reactions, nuclear structure, high energy physics, elementary particles, astrophysics, stellar evolution, and the big bang. Prerequisite: 23 or consent of instructor. GER:2a

3 units, Spr (Linde)

PHYSICS 25S. Modern Physics with Laboratory—Equivalent to 25 and 26. GER:2a

4 units, Sum (G. Fisher)

PHYSICS 26. Modern Physics Laboratory—Pre- or corequisite: 25.
1 unit, Spr (Staff)

PHYSICS 28. Mechanics, Heat, and Electricity—For biology, social science, and premedical students. The sequence 28 and 29 fulfills, in ten weeks, the one-year college physics requirement with lab of most medical schools. Topics: Newtonian mechanics, fluid mechanics, theory of heat, electric charges, and currents. Calculus is used as a language and developed as needed. Prerequisite: working knowledge of elementary algebra and trigonometry. GER:2a

6 units, Sum (G. Fisher)

PHYSICS 29. Electricity and Magnetism, Optics, Modern Physics—Magnetism, induced currents; wave motion, optics; relativity, quantum mechanics, atomic theory, radioactivity, nuclear structure and reactions, elementary particles, astrophysics, and cosmology. Prerequisite: 28. GER:2a

6 units, Sum (G. Fisher)

PHYSICS 51. Light and Heat—Reflection and refraction, lenses and lens systems; polarization, interference, and diffraction; temperature, properties of matter, introduction to kinetic theory of matter. Prerequisites: high school physics or 53, and MATH 19 or 41, or consent of instructor. GER:2a

4 units, Aut (Michelson)

PHYSICS 51N. Advanced Topics in Light and Heat—Stanford Introductory Seminar. Preference to freshmen. Expands on the subject matter presented in 51 to include optics and thermodynamics in our everyday lives, and applications in the research laboratory. Corequisite: 51 or advanced placement.

1 unit, Aut (Manoharon)

PHYSICS 52. Light and Heat Laboratory—(Formerly 48.) Pre- or corequisite: 51.

1 unit, Aut (Staff)

PHYSICS 53. Mechanics—Vectors, particle kinematics and dynamics, work, energy, momentum, angular momentum; conservation laws; rigid bodies; mechanical oscillations and waves. Discussions based on use of calculus. Corequisite: MATH 19 or 41, or consent of instructor. GER:2a

4 units, Win (Burchat)

PHYSICS 53N. Mechanics: Insights, Applications, and Advances—Stanford Introductory Seminar. Preference to freshmen. Possible topics include tidal forces, gyroscopic effects, fractal dimensions, and chaos. Enrollment limited to 20 students in one section. Corequisite: 53.

1 unit, Win (Burchat)

PHYSICS 55. Electricity and Magnetism—Electrostatics, including fields, potentials, capacitors, and dielectrics. Steady state currents, and circuits with batteries and resistors. RC circuits. Time varying currents and fields, inductance, Maxwell's equations. Prerequisites: 53, and MATH 19 or 41. Corequisite: MATH 20 or 42, or consent of instructor. GER:2a

4 units, Spr (Osheroff)

PHYSICS 56. Electricity and Magnetism Lab—(Formerly 46.) Pre- or corequisite: 55.

1 unit, Spr (Staff)

PHYSICS 59. Current Research Topics—Recommended for all prospective physics majors. Major areas of current research. Topics: fundamental particles, solid state physics, low temperature physics, biophysics, and astrophysics. Lectures by faculty and physicists with research interests in these fields.

1 unit, Aut (Burchat)

PHYSICS 61,63,65. Advanced Freshman Physics—Recommended for students contemplating a major in Physics and other students interested in a more rigorous treatment of physics. The fundamental structure of classical physics including Newtonian mechanics, Lagrangian mechanics, special relativity, and electricity and magnetism; topics in heat and light in Spring Quarter. Lectures and small discussion sections. Diagnostic quiz in calculus and conceptual Newtonian mechanics at first meeting of 61 to help students decide if course is appropriate; instructor may suggest some students would benefit more from the 50 series. Prerequisites: high school physics and familiarity with calculus (differentiation and integration in one variable); prior or concurrent registration in MATH 42. 61, 63, 65 each satisfy GER:2a

PHYSICS 61. Advanced Freshman Physics: Mechanics

4 units, Aut (Goldhaber-Gordon)

PHYSICS 63. Advanced Freshman Physics: Electromagnetism

4 units, Win (Goldhaber-Gordon)

PHYSICS 65. Advanced Freshman Physics: Thermodynamics and Optics

4 units, Spr (Zhang)

PHYSICS 61N. Advanced Mechanics: Insights, Applications, and Advances—Stanford Introductory Seminar. Preference to freshmen. Possible topics include tidal forces, gyroscopic effects, fractal dimensions, and introduction to chaos. Enrollment limited to 20 students in one section. Corequisite: 61.

1 unit, Aut (Gratta)

PHYSICS 63N. Applications of Electromagnetism—Stanford Introductory Seminar. Preference to freshmen. Material related to PHYSICS 63 at a more advanced level. Students participate in selecting topics. Enrollment limited to 20 students in one section. Corequisite: 63.

1 unit, Win (Thomas)

PHYSICS 64. Advanced Electromagnetism Laboratory—Experimental work in mechanics, electricity and magnetism. Corequisite 63.

1 unit, Win (Staff)

PHYSICS 65N. Applications of Thermodynamics and Optics—Stanford Introductory Seminar. Preference to freshmen. Possible topics include failure of classical statistical physics and the introduction of quantum ideal gases, entropy and information theory, phase transitions, statistical mechanics of photons, and simple transport phenomena. Corequisite: 65. GER:2a

4 units, Spr (Kapiulnik)

PHYSICS 67. Introduction to Laboratory Physics—Introduction to methods of experimental design, data collection and analysis, statistics, and curve fitting in a laboratory setting. Experiments drawn from electronics, optics, heat, and particle physics. Intended as preparation for Physics 105, 107, 108. Lecture plus laboratory format. Required for 60 series physics majors, recommended for 50 series students who intend to major in physics. Corequisite: 65 or 55.

2 units, Spr (Fisher)

PHYSICS 70. Modern Physics—Relativity, the experimental basis of quantum theory, Schrödinger equation, atomic structure, nuclear structure, high energy physics, elementary particles. Prerequisite: 50 or 60 series. Recommended: prior or concurrent registration in MATH 53 or 130. GER:2a

4 units, Aut (Kasevich)

PHYSICS 80N. The Technical Aspects of Photography—Stanford Introductory Seminar. Preference to freshmen. How cameras record photographic images on film and electronically. The technical photographic processes needed to use cameras effectively. Camera types and advantages, how lenses work and their limitations, shutters, light meters and the proper exposure of film, film types, depth of focus, focal plane and perspective, and special strategies for macro and night photography. View cameras and range finder technical cameras. Students exploit the flexibility of these formats to take photographs around campus. Prerequisite: elementary physics; some background in photography.

3 units, Win (Osheroff)

PHYSICS 83N. Physics in the 21st Century—Stanford Introductory Seminar. Preference to freshmen. Current topics at the frontier of modern physics. Topics include subatomic particles and the standard model, symmetries in nature, extra dimensions of space, string theory, supersymmetry, the big bang theory of the origin of the universe, black holes, dark matter, and dark energy of the universe. Why does the sun shine; cosmology and inflation. GER:2a

3 units, Win (Dimopoulos)

PHYSICS 85Q. Cosmology in the 21st Century—Stanford Introductory Seminar. Preference to sophomores. Current topics at the frontier of research in cosmology including dark matter, dark energy, the cosmic microwave background, inflation, matter-antimatter asymmetry, and the origin of the big bang.

1 unit, Spr (Thomas)

PHYSICS 105,107,108. Intermediate Physics Laboratory Sequence—Sequence in experimental techniques required of all Physics majors.

PHYSICS 105. Intermediate Physics Laboratory I: Analog Electronics—Analog electronics, from Ohm's Law and passive circuits to transistor and op amp circuits, with an emphasis on developing practical circuit design skills to prepare undergraduates for laboratory research. Course culminates in a short design project. Minimal use of math and physics, no prior electronics experience assumed beyond introductory physics. Prerequisite: PHYSICS 55 or 63 or other introductory electricity and magnetism course.

3 units, Aut (Pam)

PHYSICS 107. Intermediate Physics Laboratory II: Experimental Techniques and Data Analysis—Experiments on lasers, Gaussian optics, and atom-light interaction, with emphasis on data and error analysis techniques. Students describe a subset of experiments in scientific paper format. Prerequisites: 50 or 60 series, 70, and 105. Recommended: 130, prior or concurrent enrollment in 120. WIM

4 units, Win (Kasevich)

PHYSICS 108. Intermediate Physics Laboratory III: Project—Small student groups plan, design, build, and carry out a single experimental project in low-temperature physics. Prerequisites 105, 107.

3 units, Spr (Moler)

PHYSICS 110. Intermediate Mechanics—The mechanics of systems of particles and rigid bodies. Newtonian mechanics; linear and nonlinear oscillations; Hamilton's principle, Lagrangian and Hamiltonian dynamics; central forces, planetary motion; collisions; non-inertial reference systems; rigid body dynamics; coupled oscillations; and introductory fluid mechanics oscillations. Prerequisites: 53 or 61, and MATH 53 or 130.

4 units, Spr (Gratta)

PHYSICS 112. Mathematical Methods of Physics—Theory of complex variables, complex functions, and complex analysis. Fourier series and Fourier transforms. Special functions such as Laguerre, Legendre, and Hermite polynomials, and Bessel functions. The uses of Green's functions. Covers material of MATH 106 and 132 most pertinent to Physics majors. Prerequisites: MATH 50 or 50H series, MATH 131.

4 units, Win (Fetter)

PHYSICS 113. Computational Physics—Introduction to numerical methods for solving problems in mechanics, electromagnetism, quantum mechanics, and statistical mechanics. Methods include numerical integration; solutions of ordinary and partial differential equations; solutions of the diffusion equation, Laplace's equation and Poisson's equation with relaxation methods; statistical methods including Monte Carlo techniques; matrix methods and eigenvalue problems. Short introduction to MatLab, used for class examples; class projects may be programmed in any language such as C. Prerequisites: 110, 121, and MATH 53 or 130. Previous programming experience not required.

4 units, Spr (Cabrera)

PHYSICS 120,121. Intermediate Electricity and Magnetism—Vector analysis, electrostatic fields, including multipole expansion; dielectrics. Special relativity and transformation between electric and magnet-

ic fields. Maxwell's equations. Static magnetic fields, magnetic materials. Electromagnetic radiation, plane wave problems (free space, conductors and dielectric materials, boundaries). Dipole and quadrupole radiation. Wave guides and cavities. Prerequisites: 55 or 63; concurrent or prior registration in MATH 53 and 131 for 120 and 121, respectively. Recommended: concurrent or prior registration in 112.

PHYSICS 120. 4 units, Win (Thomas)

PHYSICS 121. 4 units, Spr (Shen)

PHYSICS 130,131. Quantum Mechanics—The origins of quantum mechanics, wave mechanics, and the Schrödinger equation. Heisenberg's matrix formulation of quantum mechanics, solutions to one-dimensional systems, separation of variables and the solution to three-dimensional systems, the central field problem and angular momentum eigenstates, spin and the coupling of angular momentum, Fermi and Bose statistics, time-independent perturbation theory. Prerequisites: 70, 110; concurrent or prior registration in 120, 121, and MATH 131.

PHYSICS 130. 4 units, Aut (Silverstein)

PHYSICS 131. 4 units, Win (Silverstein)

PHYSICS 134. Advanced Topics in Quantum Mechanics—Variational principle, WKB approximation, time-dependent perturbation theory. Scattering theory: partial wave expansion, Born approximation. EPR paradox and Bell's inequality. Brief introduction to relativistic quantum mechanics. Prerequisites: 130, 131.

4 units, Spr (Kahn)

PHYSICS 152. Introduction to High Energy Physics—(Graduate students register for 252.) The standard model of particle physics; unified weak and electromagnetic interactions; quantum chromodynamics and strong interactions; flavor violating processes; grand unified theories; and early cosmology and baryogenesis. Prerequisite: 121.

3 units, Win (Dimopoulos)

PHYSICS 170,171. Thermodynamics, Kinetic Theory, and Statistical Mechanics—The derivation of laws of thermodynamics from basic postulates; the determination of the relationship between atomic substructure and macroscopic behavior of matter. Temperature; equations of state, heat, internal energy; entropy; reversibility; applications to various properties of matter; absolute zero and low-temperature phenomena. Distribution functions, transport phenomena, fluctuations, equilibrium between phases, phase changes, the partition function for classical and quantum systems, Bose-Einstein condensation, and the electron gas. Cooperative phenomena including ferromagnetism, the Ising model, and lattice gas. Irreversible processes. Prerequisites: 51 or 65, and MATH 53 or 130.

PHYSICS 170. 4 units, Aut (Zhang)

PHYSICS 171. 4 units, Win (Zhang)

PHYSICS 172. Physics of Solids I—Introduction to solid state physics. Crystal structures and bonding in solids. Lattice dynamics and thermal properties. Electronic structure of solids; transport properties of metals; quantum oscillations. Properties and applications of semiconductors. Phenomenology and microscopic theory of superconductivity. Prerequisite: 170.

3 units, Spr (I. R. Fisher)

PHYSICS 173. Magnetism and Long Range Order in Solids—(Enroll in APPPHYS 270.)

3 units (Fisher) not given 2004-05

PHYSICS 173B. Concepts in Condensed Matter Physics—Introduction to advanced concepts in condensed matter physics using simple, archetypical examples. Topics include interaction and correlation, emergent order and symmetry breaking, new states of matter, pattern formation, and nonlinear dynamics in material systems. Prerequisite: introductory course in solid state or condensed matter physics.

1 unit, Spr (Beasley)

PHYSICS 181. Introduction to Modern Optics—(Enroll in EE 268.)

3 units, Aut (Byer) alternate years, not given 2005-06

PHYSICS 190. Independent Study—Undergraduate research in experimental or theoretical physics under the supervision of a faculty member. Prerequisites: superior work as an undergraduate physics major; and approval of the instructor.

1-9 units, Aut, Win, Spr, Sum (Staff)

PHYSICS 192. Introductory Biophysics—(Enroll in APPPHYS 192.)

3 units (Doniach) alternate years, given 2005-06

PHYSICS 204. Advanced Seminar in Theoretical Physics—Topics of recent interest in theoretical physics: Bose-Einstein condensation of atoms, high Tc superconductivity of cuprates, quantized Hall effect, quantum and classical chaos, superfluidity in 2D, protein folding. Work in the seminar may provide a basis for an honors project in theoretical physics. Prerequisite: 134 or consent of instructor.

3 units, Aut (Doniach)

PHYSICS 205. Undergraduate Honors Research—Experimental or theoretical project and thesis in Physics under supervision of a faculty member. Planning of the thesis project should begin no later than middle of the junior year. Successful completion of an honors thesis leads to graduation with departmental honors. Prerequisites: superior work in Physics as an undergraduate major and approval of the honors adviser.

1-12 units, Aut, Win, Spr, Sum (Staff)

PHYSICS 207. Laboratory Electronics—(Enroll in APPPHYS 207.)

3 units, Win (Fox)

PHYSICS 208. Laboratory Electronics—(Enroll in APPPHYS 208.)

3 units, Spr (Fox) alternate years, not given 2005-06

GRADUATE

PHYSICS 210. Advanced Particle Mechanics—The Lagrangian and Hamiltonian dynamics of particles. Beyond small oscillations. Phase portraits, Hamilton-Jacobi theory, action-angle variables, adiabatic invariance. Nonlinear dynamical systems, continuous and discrete. Behavior near the fixed points, stability of solutions, attractors, chaotic motion. Transition to continuum mechanics. Prerequisite: 110 or equivalent.

3 units, Win (Kallosh)

PHYSICS 211. Continuum Mechanics—Elasticity, fluids, turbulence, waves, gas dynamics, shocks, and MHD plasmas. Examples from everyday phenomena, geophysics, and astrophysics.

3 units, Win (Fetter)

PHYSICS 212. Statistical Mechanics—Kinetic theory; evolution of distribution function, transport coefficients. Principles of statistical mechanics; ensembles, statistical equilibrium. Thermodynamic functions, ideal and near-ideal gases, solids. Fluctuations, noise, and irreversible thermodynamics. Phase transitions and cooperative phenomena. Prerequisites: 171, 231.

3 units, Spr (Thomas)

PHYSICS 215B. Numerical Methods for Physicists and Engineers—(Enroll in APPPHYS 215A.)

3 units, Aut (Moler)

PHYSICS 216. Back of the Envelope Physics—Techniques to make order-of-magnitude estimates of physical effects. Goal is to sharpen physical intuition and promote a synthesis of physics through the application of undergraduate physics to problems, some not included in the standard curriculum. Techniques such as scaling and dimensional analysis. Applications include properties of materials, geophysics, astrophysics and cosmology, biomechanics, and particle physics. Prerequisites: undergraduate mechanics, statistical mechanics, electricity and magnetism, and quantum mechanics.

3 units, Aut (Wagoner)

PHYSICS 220,221. Classical Electrodynamics—Electrostatics and magnetostatics: conductors and dielectrics, magnetic media, electric and magnetic forces, and energy. Maxwell's equations: electromagnetic waves, Poynting's theorem, electromagnetic properties of matter, dispersion relations, wave guides and cavities, magnetohydrodynamics.

Special relativity: Lorentz transformations, covariant, equations of electrodynamics and mechanics, Lagrangian formulation, Noether's theorem and conservation laws. Radiation: dipole and quadrupole radiation, electromagnetic scattering and diffraction, the optical theorem, Liénard-Wiechert potentials, relativistic Larmor's formula, frequency and angular distribution of radiation, synchrotron radiation. Energy losses in matter: Bohr's formula, Cherenkov radiation, bremsstrahlung and screening effects, transition radiation. Prerequisites: 121 or equivalent; MATH 106 and 132, or PHYSICS 210.

PHYSICS 220. 4 units, Aut (Fetter)

PHYSICS 221. 4 units, Spr (Church)

PHYSICS 223. Applied Quantum Mechanics II—(Enroll in EE 223.) 3 units, Win (Vuckovic)

PHYSICS 226. Physics of Quantum Information—(Enroll in APPHYS 226.)

3 units, Win (Yamamoto) alternate years, not given 2005-06

PHYSICS 230,231,232. Quantum Mechanics—Prerequisites: Quantum mechanics at the undergraduate level and a strong course on differential equations.

PHYSICS 230. Quantum Mechanics—Fundamental concepts. Introduction to Hilbert spaces and Dirac's notation. Postulates are applied to simple systems, including those with periodic structure. Symmetry operations and gauge transformation. The concept of propagators and path integral quantization. Problems related to measurement theory. The quantum theory of angular momenta and central potential problems (hydrogen, quarkonium).

3 units, Aut (Zaenen)

PHYSICS 231. Quantum Mechanics—Basis for higher level courses on atomic physics, optics, spectroscopy, and particle physics. Wigner-Eckart theorem and addition of angular momenta. Approximation methods for time-independent and time-dependent perturbations. Semiclassical and quantum theory of radiation, second quantization of radiation and matter fields. Systems of identical particles and many electron atoms.

3 units, Win (Kivelson)

PHYSICS 232. Quantum Mechanics—Special topics. Elementary scattering theory (Born approximation, partial wave analyses, resonance scattering). S-matrix formalism. Relativistic single-particle equations. Dirac equation applied to central potentials, relativistic corrections, and nonrelativistic limits.

3 units, Spr (Kivelson)

PHYSICS 252. Introduction to High Energy Physics—See 152.

3 units, Win (Dimopoulos)

PHYSICS 260. Introduction to Astrophysics and Cosmology—The basic properties of stars, galaxies, and the universe. Physical processes for production of radiation from cosmic sources. The observations of cosmic microwave background radiation and consequences for the formation, structure, and evolution of the universe. Models of the early universe, nature of dark matter and dark energy, inflation, and the relation between particle physics and cosmology. Prerequisites: 121, 171.

3 units, Aut (Petrosian)

PHYSICS 262. Introduction to Gravitation—Review of special relativity. An introduction to general relativity. Curvature, energy-momentum tensor, Einstein field equations. Newtonian limit of general relativity. Introduction to black holes, gravitational waves, cosmology. Prerequisites: 121 or other courses including special relativity.

3 units, Spr (Kallos)

PHYSICS 272. Solid State Physics I—(Enroll in APPHYS 272.)

3 units, Win (Manoharan)

PHYSICS 273. Solid State Physics II—(Enroll in APPHYS 273.)

3 units, Spr (Manoharan)

PHYSICS 275. Electrons in Nanostructures—The behavior of electrons in metals or semiconductors at length scales below 1 micron,

smaller than familiar macroscopic objects but larger than atoms. Ballistic transport, Coulomb blockade, localization, quantum mechanical interference, and persistent currents. Topics may include quantum Hall systems, spin transport, spin-orbit coupling in nanostructures, magnetic tunnel junctions, Kondo systems, and 1-dimensional systems. Readings focus on the experimental research literature, and recent texts and reviews. Prerequisite: undergraduate-level familiarity with quantum mechanics and solid state physics.

3 units (Goldhaber-Gordon) not given 2004-05

PHYSICS 290. Research Activities at Stanford—Required of all first-year physics graduate students and strongly suggested for junior physics majors for 1 unit; no registration needed for graduate students. Review of research activities in the department and elsewhere at Stanford at a level suitable for entering graduate students.

1-3 units, Aut (Church)

PHYSICS 291. Practical Training—Opportunity for practical training in industrial labs. Arranged by student with the research adviser's approval. Required summary of activities, approved by the research adviser.

3 units, Sum (Staff)

PHYSICS 293. Literature of Physics—Intensive study of the literature of any special topic. Preparation, presentation of reports. If taken under the supervision of a faculty member outside the department, approval of the Physics chair required. Prerequisites: 25 units of college physics, consent of instructor.

1-15 units, Aut, Win, Spr, Sum (Staff)

PHYSICS 294. Teaching of Physics Seminar—Required of all teaching assistants in Physics concurrent with the first quarter of a teaching appointment; registration not required. Techniques of teaching physics by means of weekly seminars/discussions, simulated teaching situations, and evaluation of in-class teaching performance.

1 unit, Aut, Win, Spr (Pam)

PHYSICS 301. Astrophysics Laboratory—Seminar/lab. Astronomical observational techniques and physical models of astronomical objects. Observational component uses the 24-inch telescope at the Stanford Observatory and ancillary photometric and spectroscopic instrumentation. Emphasis is on spectroscopic and photometric observation of main sequence, post-main sequence, and variable stars. Term project developing observational equipment or software. Limited enrollment. Prerequisite: consent of instructor.

3 units, Spr (Romani)

PHYSICS 312. Basic Plasma Physics—For the nonspecialist who needs a working knowledge of plasma physics for space science, astrophysics, fusion, or laser applications. Topics: orbit theory, the Boltzmann equation, fluid equations, MHD waves and instabilities, EM waves, the Vlasov theory of ES waves and instabilities including Landau damping and quasilinear theory, the Fokker-Planck equation, and relaxation processes. Advanced topics in resistive instabilities and particle acceleration. Prerequisite: 210 and 220, or consent of instructor.

3 units, Win (Kosovichev)

PHYSICS 315. Methods in Computational Biology—(Enroll in APPHYS 315.)

3 units (Doniach) alternate years, given 2005-06

PHYSICS 321. Laser Spectroscopy—Theoretical concepts and experimental techniques. Absorption, dispersion, Kramers-Kronig relations, line-shapes. Classical and laser linear spectroscopy. Semiclassical theory of laser atom interaction: time-dependent perturbation theory, density matrix, optical Bloch equations, coherent pulse propagation, multiphoton transitions. High-resolution nonlinear laser spectroscopy: saturation spectroscopy, polarization spectroscopy, two-photon and multiphoton spectroscopy, optical Ramsey spectroscopy. Semiclassical theory of the laser. Phase conjugation. Four-wave mixing, harmonic generation. Coherent Roman spectroscopy, quantum beats, ultra-sensitive detection. Offered occasionally. Prerequisite: 230. Recommended: 231.

3 units (Kasevich) not given 2004-05

PHYSICS 323. Laser Cooling and Trapping—Principles of laser cooling and atom trapping. The general treatment of optical forces on atoms, the various forms of laser cooling, atom optics and atom interferometry, ultra-cold collisions, and an introduction to Bose condensation of dilute gases. Emphasis is on the development of the general formalisms currently used to treat these topics. Applications of the cooling and trapping techniques: atomic clocks, internal sensors, measurements that address high-energy physics questions, studies of many-body effects, polymer science, and biology. Prerequisite: 231 or equivalent.

3 units (*Kasevich*) not given 2004-05

PHYSICS 324. Introduction to Accelerator Physics—(Enroll in APPPHYS 324.)

3 units (*Siemann*) alternate years, given 2005-06

PHYSICS 330,331,332. Quantum Field Theory—Introduction to the concepts and methods of quantum field theory. Prerequisites: 210, 221, 232.

PHYSICS 330. Quantum Field Theory—Quantization of scalar and Dirac fields. Feynman diagrams. Quantum electrodynamics. Elementary electrodynamic processes: Compton scattering, $e+e-$ annihilation. Loop diagrams and electron ($g-2$). Soft photons and infrared divergences.

3 units, Aut (*Peskin*)

PHYSICS 331. Quantum Field Theory—Functional integral methods, renormalization, Ward Identities, renormalization group, perturbation theory anomalies.

3 units, Win (*Peskin*)

PHYSICS 332. Quantum Field Theory—Local gauge invariance, Yang-Mills fields, spontaneous symmetry breaking and the Higgs mechanism, quantization of Yang-Mills fields, asymptotic freedom. Quantum chromodynamics.

3 units, Spr (*Peskin*)

PHYSICS 351,352. Elementary Particle Physics—The phenomena of elementary particle interactions and their theoretical interpretation. Offered occasionally. Prerequisite: 330.

PHYSICS 351. Elementary Particle Physics: Introduction to the Standard Model—Theory of electroweak interactions, electroweak unification, neutral flavor conservation, GIM mechanism. Theory of strong interactions, QCD confinement. Specialized topics chosen by the instructor.

3 units (*Dimopoulos*) not given 2004-05

PHYSICS 352. Neutrino Physics—Neutrino masses and mixing. Kinematics tests for neutrino masses. Neutrino interactions, the number of light neutrino species. Solar and atmospheric neutrino anomalies. Artificial neutrino sources: reactors and particle accelerators. Majorana and Dirac neutrinos. Double-beta decay. Neutrinos in supernovae. Relic neutrinos. Neutrino telescopes.

3 units, Win (*Vogel*)

PHYSICS 360. Physics of Astrophysics—Theoretical concepts and tools for modern astrophysics. Radiation transfer equations; emission, scattering, and absorption mechanisms: Compton, synchrotron and Bremsstrahlung processes; photoionization and line emission. Equations of state of ideal, interacting, and degenerate gasses. Application to astrophysical sources such as HII regions, supernova remnants, cluster of galaxies, and compact sources such as accretion disks, X-ray, gamma-ray, and radio sources. Prerequisites: 121, 171 or equivalent.

3 units, Aut (*Madejski*)

PHYSICS 361. Stellar and Galactic Astrophysics—Basic astronomical data on stars, star clusters, interstellar medium, and the Milky Way galaxy. Basic theory of stellar structure; hydrostatic equilibrium, radiation balance, and energy production. Stellar formation, Jean's mass, and protostars. Evolution of stars to the main sequence and beyond to red giants, white dwarfs, neutron stars, and black holes. Structure of the Milky Way: the disk and spiral arms, central bulge or bar, black hole, the halo, and mass of the galaxy. Prerequisites: 221, and 260 or 360.

3 units, Win (*Petrosian*)

PHYSICS 362. Advanced Extragalactic Astrophysics and Cosmology—Basic observational data on the content and activities of galaxies, the content of the universe, the cosmic microwave background radiation, gravitational lensing, and dark matter in the universe. Models of the origin, structure, and evolution of the universe based on the theory of general relativity. Test of the models and nature of dark matter and dark energy. Physics of the early universe, inflation, baryosynthesis, nucleosynthesis, and galaxy formation. Prerequisites: 210, 211, 260 or 360.

3 units, Spr (*Wagoner, Blandford*)

PHYSICS 363. Solar and Solar-Terrestrial Physics—Structure, mechanisms, and properties of the Sun's interior and atmosphere. Tools for solar observations; magnetic fields and polarimetry. Solar oscillations and helioseismology. Differential rotation and turbulent convection. Solar MHD, Alfvén and magneto-acoustic waves. Solar cycle and dynamo. Magnetic energy release, reconnection, particle acceleration. Solar activity, sunspots, flares, coronal mass ejections; UV, X-ray, and high-energy particle emissions. The interaction of the solar wind with Earth's magnetosphere and its terrestrial effects; space weather. Prerequisite: 221 or equivalent.

3 units (*Kosovichev*) not given 2004-05

PHYSICS 364. Advanced Gravitation—Fundamental principles and experiments. Methods for solving Einstein equations. Penrose diagrams, singularities, black holes, and thermodynamics. Charged and rotating black holes, Hawking radiation. Anti de Sitter and de Sitter spaces in applications to high energy physics and cosmology. Topics in general relativity, astrophysics, and high-energy physics. Prerequisites: 220, 221, and 262, or an equivalent introduction to general relativity.

3 units, Aut (*Linde*)

PHYSICS 370. Theory of Many-Particle Systems—Application of quantum field theory to the nonrelativistic, many-body problem, including methods of temperature-dependent Green's functions and canonical transformations. Theory of finite-temperature, interacting Bose and Fermi systems with applications to superfluidity, superconductivity, and electron gas. Offered occasionally. Prerequisite: 232.

3 units (*Zhang*) not given 2004-05

PHYSICS 372. Condensed Matter Theory I—(Enroll in APPPHYS 372.)

3 units (*Staff*) not given 2004-05

PHYSICS 373. Condensed Matter Theory II—(Enroll in APPPHYS 373.)

3 units (*Staff*) not given 2004-05

PHYSICS 376. Superfluidity and Superconductivity—Introduction to superfluid He: two-fluid model, phonons, and rotons, Feynman description, vortices, Bogoliubov theory. Phenomenology of superconductors: London description, Ginzburg-Landau model, type-I vs. type-II materials, Josephson effects, thin films, Kosterlitz-Thouless behavior, electron-phonon coupling. BCS theory: bulk systems, tunneling, strong-coupling materials, dirty and gapless superconductivity, fluctuation effects, Ginzburg criterion. Offered occasionally. Recommended: APPPHYS 272, 273, or equivalents.

3 units (*Laughlin*) not given 2004-05

PHYSICS 377. Literature of Condensed Matter Physics—Key discoveries in condensed matter physics in the past 15 years, with emphasis on experiment. Topics: sliding charge density waves in layer compounds, the first pressure-induced Mott transition and organic superconductor, the discovery of superfluid ^3He , quasicrystals, the Sharvin effect, the Quantum Hall effect, and reentrant superconductivity. Journal club format with presentations by students. Offered occasionally.

3 units (*Staff*) not given 2004-05

PHYSICS 383. Introduction to Atomic Processes—(Enroll in APPPHYS 383.)

3 units (*S. Harris*) alternate years, given 2005-06

PHYSICS 387. Quantum Optics and Measurements—(Enroll in APPPHYS 387.)

3 units (*Yamamoto*) alternate years, given 2005-06

PHYSICS 388. Mesoscopic Physics and Nanostructures—(Enroll in APPPHYS 388.)

3 units (Yamamoto) alternate years, given 2005-06

PHYSICS 392. Topics in Molecular Biophysics—(Enroll in APPPHYS 392.)

3 units, Spr (Doniach) alternate years, not given 2005-06

PHYSICS 450,451,452. Theoretical Physics of Particles and Fields—Advanced topics in theoretical high-energy physics. Topics change by quarter and year to provide a background in all areas of current theoretical research. Prerequisite: 332.

PHYSICS 450. Introduction to Supersymmetry and Supergravity—Construction of quantum field theories with supersymmetry. Superspace, nonrenormalization theorems, supersymmetry breaking, and supergravity. Models of supersymmetry in elementary particle physics. Extended and high-dimensional supersymmetry. Supergravity in 5, 11, and other higher dimensions. Prerequisite: 332.

3 units, Aut (Kallosh)

PHYSICS 451. Particle Physics and Inflationary Cosmology—The standard big bang theory, its successes and problems. The general idea of inflationary cosmology and its various versions: old inflation, new inflation, chaotic inflation, hybrid inflation. Reheating of the universe and creation of matter after inflation. The theory of density perturbations, large-scale structure formation, and anisotropy of cosmic microwave background radiation. Eternal inflation and the global structure of the universe. Anthropic principle, the cosmological constant problem and dark energy. Towards inflation in string theory and brane cosmology.

3 units, Win (Hewett)

PHYSICS 452. Behind the Horizon—What current understanding of quantum gravity and string/M theory says about physics behind horizons. Goal is to develop areas for future research.

3 units, Aut (Kachru)

PHYSICS 459. Frontiers in Interdisciplinary Biosciences—(Cross-listed in departments in the schools of H&S, Engineering, and Medicine; student register through their affiliated departments; otherwise register for CHEMENG 459) See CHEMENG 459 or http://biox.stanford.edu/courses/459_announce.html.

1 unit, Aut, Win, Spr (Robertson)

PHYSICS 463. Special Topics in Astrophysics: Experimental Cosmology—Content varies depending on interests of staff and students. Topics may include measurements of fluctuations in the cosmic microwave background, large-scale structure in the distributions of galaxies, the magnitude-redshift relation of Type Ia supernovae, the cosmic shear produced by weak gravitational lensing, and the mass and redshift distribution of clusters of galaxies. Theoretical framework and experimental issues.

3 units (Staff) not given 2004-05

PHYSICS 473A. Condensed Matter Physics—(Enroll in APPPHYS 473A.)

2 units (Grevin) not given 2004-05

PHYSICS 473B. Disordered Superconductors and the Superconductor-Insulator Transition—(Enroll in APPPHYS 473B.)

3 units, Aut (Kapitulnik)

PHYSICS 490. Research—Open only to Physics graduate students, with consent of instructor. Work is in experimental or theoretical problems in research, as distinguished from independent study of a non-research character in 190 and 293.

1-15 units, Aut, Win, Spr, Sum (Staff)

POLITICAL SCIENCE

Emeriti: (Professors) David B. Abernethy, Lucius J. Barker, Richard A. Brody, Charles Drekmeier, Richard R. Fagen, Alexander L. George, Robert A. Horn, Nobutaka Ike, John W. Lewis, Seymour M. Lipset, John Manley, James March, Hubert R. Marshall, Robert A. Packenham, Philippe Schmitter, Robert Ward, Hans N. Weiler; (*Senior Lecturer*) Elisabeth Hansot

Chair: Terry M. Moe

Professors: David W. Brady, James D. Fearon, John A. Ferejohn, Morris P. Fiorina, Judith L. Goldstein, Stephen H. Haber, David J. Holloway, Shanto Iyengar, Terry L. Karl, Stephen D. Krasner, David D. Laitin, Terry M. Moe, Jean C. Oi, Daniel I. Okimoto, Jack N. Rakove, Condoleezza Rice (on leave), Douglas Rivers, Scott D. Sagan, Paul M. Sniderman, Barry R. Weingast

Associate Professors: Luis R. Fraga, Simon D. Jackman, Michael A. McFaul (Stanford in Washington), Kenneth A. Schultz

Assistant Professors: Alberto Díaz-Cayeros, Claudine Gay, Beatriz Magaloni, Isabela Mares, Rob Reich (on leave), Peter Stone, Michael R. Tomz, Carolyn Wong, Anne T. Wren, Jonathan Wand, Jeremy Weinstein

Professor (Research): Norman Nie

Lecturers: Mary I. Dakin, Andrew R. Rutten, David Victor

Courtesy Professors: David P. Baron, Jonathan B. Bendor, Coit D. Blacker, Gerhard Casper, Larry Diamond, Gerald A. Dorfman, Jean-Pierre Dupuy, James Fishkin, Lawrence Friedman, Keith Krehbiel, Gail W. Lapidus, Roger Noll, Stephen J. Stedman

Courtesy Associate Professors: Joy P. Connolly, Debra M. Satz

Visiting Professors: Robert Adcock, Jean Leca, Barbara Shapiro

Visiting Associate Professor: H. Lyman Miller

Visiting Lecturers: Abbas Milani, Mary Sprague

Department Offices: Encina Hall West, Room 100

Mail Code: 94305-6044

Phone: (650) 723-1806

Web Site: <http://polisci.stanford.edu>

Courses given in Political Science have the subject code POLISCI. For a complete list of subject codes, see Appendix.

UNDERGRADUATE PROGRAMS BACHELOR OF ARTS

To receive a B.A. in Political Science, a student must:

1. Submit an application for the Political Science major to the undergraduate administrator, and declare on Axess. Forms are available in Encina Hall West, Room 100. For additional information, drop by or phone (650) 723-1608. Students must complete their major declaration no later than the last day of the first quarter of their junior year.
2. Complete 60 units:
 - a) 35 Political Science course units must complete the breadth requirements.
 - b) 15 Political Science units must be completed by taking other Political Science courses units including directed reading, other introductory-level courses, and freshman/sophomore seminar courses.
 - c) the remaining 10 units may be from: other Political Science courses; courses outside the department that are related to the student's interests in political science and are not entry-level courses in other disciplines such as ECON 1 or PSYCH 1; or Political Science honors students may apply 10 thesis units (POLISCI 299A,B,C).
3. Satisfy breadth requirements (35 units): each major must take two courses out of the following Political Science courses, one of which must be in the primary concentration; the other may be in any field: POLISCI 1, Introduction to International Relations; POLISCI 2, American National Government and Politics; POLISCI 3, Introduction to Political Philosophy; POLISCI 4, Introduction to Comparing Political Systems; POLISCI 151A, Doing Political Science, or POLISCI 151B, Data Analysis for Political Science

The primary concentration must be completed by fulfilling the depth requirement with at least 20 units (see Statement 4).

Each major should declare a secondary concentration in another subfield, with at least 10 units in that concentration. Each major should take at least 5 units in a third subfield.

4. Satisfy a depth requirement. Each major should declare a primary concentration in one subfield and take at least 20 units in this concentration, including the introductory course for that subfield. Subfields include:
 - International Relations (1, 110-119, 210-219, 310-319)
 - American Politics (2, 120-129, 220-229, 320-329)
 - Political Theory (3, 130-139, 230-239, 330-339)
 - Comparative Politics (4, 140-149, 240-249, 340-349)
5. Demonstrate the capacity for sustained research and writing in the discipline. This requirement is satisfied by taking a Political Science course which has been designated a Writing in the Major (WIM) course.
6. Take at least one 5-unit, advanced undergraduate seminar in Political Science.
7. Students may apply a maximum of 10 units from Stanford Summer Session or courses outside Stanford. Transfer students are allowed up to 20 units of transfer units or summer session. All transfer cases require petitions which must be reviewed and approved by the Director of Undergraduate Studies.
8. Directed reading units may not be used to fulfill a breadth requirement, and no more than 10 units of directed reading may count toward the required 50 Political Science units.
9. All courses counting toward the 60-unit requirement must be taken for a letter grade, although units in excess of the required 60 may be taken on a credit/no credit basis. A minimum grade of 'C' is required for courses to count towards major requirements.

MINORS

Students must complete their declaration of the minor no later than the last day of the quarter *two* quarters before degree conferral. Students must declare via AXESS. For example, a student graduating in June (Spring Quarter) must declare the minor no later than the last day of Autumn Quarter of the senior year.

To receive a minor in Political Science, a student must complete a minimum of 30 unduplicated units. All units must be in courses listed or crosslisted in the Department of Political Science. A maximum of 5 units of directed reading may count if supervised by a member of the department.

All units are for a letter grade. A minimum grade of 'C' is required for courses to count towards minor requirements.

Concentration—The student selects a subfield in which three courses are taken. One of these courses is the introductory course, the other two at a more advanced level (numbered above 100). Where a linked set of advanced courses is offered (as with the Political Theory 130A,B,C series), the introductory course need not be taken.

The concentration corresponds to one of the subfields the department already has in place, namely, international relations, American politics, political theory, and comparative politics.

Distribution—Three courses must be in the area of concentration, as specified above, for 15 units. An additional 10 units of intermediate and advanced courses (100 level or above) must be in two additional subfields.

Transfer Work—A maximum of 10 units of work completed outside Stanford may be given Political Science credit toward the minor for transfer students. A maximum of 5 units of work completed in Stanford Summer Session or outside of Stanford for non-transfer students may be given Political Science credit toward the minor. All such cases must be individually reviewed and approved by the Director of Undergraduate Studies.

PRIZES

There are three annual prizes for undergraduate students: the Arnaud B. Leavelle Memorial Prize for the best paper in the History of Political Thought sequence (POLISCI 130A,B,C), a cash prize for the best thesis written in political theory, and the Lindsay Peters, Jr., Memorial Prize for the outstanding student each year in POLISCI 2.

HONORS PROGRAM

The honors program offers qualified students an opportunity to conduct independent research, write a thesis summarizing their findings, and make a presentation of their work. During the process of research, analysis, thinking, drafting, rethinking, and redrafting, students work closely with a faculty adviser and their fellow students.

Applicants must have a 3.5 grade point average (GPA) in Political Science courses, and an adviser who must be a regular faculty member. Application forms should be completed by the Spring Quarter of the junior year, and can be obtained from the department office.

Students who are interested in writing a thesis are encouraged to enroll in POLISCI 299Q, Junior Research Seminar, in the Winter Quarter of their junior year. This credit/no-credit course is designed to help students find a manageable thesis topic and adviser.

Students who are accepted into the program should plan to make the thesis the focus of their senior year. They should enroll in POLISCI 299A,B,C, which covers research and writing directed by the student's adviser. In addition, students must enroll in POLISCI 299R, a 3-unit Autumn Quarter seminar designed to develop research and writing skills. In the Winter and Spring quarters, students enroll in POLISCI 299S and T, which are credit/no credit tutorials in which students work with other students and tutors to finish their research.

Most students find themselves in one of two groups: (1) those who already have substantial background in their thesis topic, and can expect to complete the honors program in two or three quarters for a total of 10-15 units completed in POLISCI 299A,B,C; or (2) those who have little or no previous work on the topic, and can expect to complete the program in three quarters with 15 units of work.

To complete the honors program, students must:

1. Complete all requirements for the major
2. Enroll in POLISCI 299R
3. Complete a thesis of honors quality (B+ or better).

Honors work done for credit (POLISCI 299A,B,C) may not be counted toward the required 50 units in Political Science but may be counted as all or part of the additional 10 units which relate to the student's interest in political science.

GRADUATE PROGRAMS

Admission—Prospective graduate students should see <http://gradadmissions.stanford.edu> for application materials; for a printed application, write to Graduate Admissions, the Registrar's Office, 520 Lasuen Mall, Old Union Building, Stanford University, Stanford, CA 94305-3005. Applicants for admissions to graduate work are required to submit a recent writing sample (not to exceed 35 pages). All applicants are required to submit a sample of their writing and to take the General Test of the Graduate Record Examination. Applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL). The TOEFL requirements are waived for applicants who have recently completed two or more years of study in an English-speaking country. For details concerning these tests, see the *Guide to Graduate Admission*, available at <http://registrar.stanford.edu/publications>. The application deadline is December 7. Admission is offered for the Autumn Quarter only. The department expects all students to pursue a full-time program except for time devoted to teaching or research assistantships.

MASTER OF ARTS

The M.A. degree may be pursued as part of a joint degree program with one of the University's professional schools. Students interested in a joint degree should apply for admission to the M.A. program in Political Science during the Autumn Quarter of the first year in the Stanford professional school.

Doctoral candidates may elect to take the M.A. degree when they have met the following requirements:

1. Completion of at least three quarters of residency as a graduate student with 45 units of credit of which at least 25 units must be taken in Political Science graduate seminars of 300 level and above. Not more than 25 units of the 45-unit requirement may be taken in a single field.

- At least two graduate seminars in each of two fields and at least one graduate seminar in a third field.
- Of the remaining 20 units, not more than 10 units of work from related departments may be accepted in lieu of a portion of the work in Political Science. Not more than 10 units may be taken as directed reading.
- Courses must be numbered above 300.
- A grade point average (GPA) of 2.7 (B-) or better must be attained for directed reading and all course work.

The department does not offer a coterminal bachelor's and master's degree.

Doctoral candidates may pursue master's degrees from other departments. Recent examples include but are not restricted to master's degrees in Statistics and Economics. Students interested in this option should consult the relevant sections of this bulletin for both University and department requirements for master's degrees.

MASTER OF ARTS IN TEACHING

The M.A. degree in Teaching is offered jointly by this department and the School of Education. The degree is intended for candidates who have a teaching credential or relevant teaching experience and wish to further strengthen their academic preparation. The program consists of a minimum of 25 units in Political Science courses and 12 units in the School of Education. A student's program must be approved by the Director of Graduate Studies before the courses are taken. Detailed program requirements are outlined in the "School of Education" section of this bulletin.

DOCTOR OF PHILOSOPHY

The University's basic requirements for the Ph.D. degree are discussed in the "Graduate Degrees" section of this bulletin.

Programs of study leading to the Ph.D. degree are designed by the student, in consultation with advisers and the Director of Graduate Studies, to serve his or her particular interests as well as to achieve the general department requirements. A student is recommended to the University Committee on Graduate Studies to receive the Ph.D. degree in Political Science when the following program of study has been completed:

- The candidate for the Ph.D. degree must offer three of the following concentrations in political science: American politics, comparative politics, international relations, methodology, political theory, and public organizations. Upon petition, a special field (for example, public law, or urban politics) may be offered as a third concentration. Students concentrate on two of these areas by fulfilling, depending on the concentration, combinations of the following: written qualifying examinations, research papers, research design, or course work. The requirement for the third concentration may be satisfied by taking either a written examination in that area or by offering a minimum of 10 units with a grade point average (GPA) of 3.0 (B) or better in the third concentration from among the formal graduate-level courses in the five divisions of the department. The third concentration cannot be satisfied by courses taken as a requirement for a first or second concentration. A third concentration in theory requires two courses in addition to the 5 units necessary to fulfill the program requirement. Completion of special concentrations may require more than 10 units of course work. Students are not permitted to use the following combination of concentrations for the purposes of fulfilling the requirements for the PhD: American politics, political organizations, and methodology. Students wishing to concentrate in American politics, political organizations, and methodology are not prohibited from doing so, but must add another field of concentration to their course of study.
- The Ph.D. candidate is required to demonstrate competence in a language and/or skill that is likely to be relevant to the dissertation research. The level of competence needed for successful completion of the research is determined by the student's adviser. All candidates must complete 5 units of statistical methods or its equivalent. Students who are in the concentration of international relations, American politics, or political organizations are required to take an additional 5 units of methods. Previous instruction can be counted towards this requirement only if approved by the Director of Graduate Studies.

- Every Ph.D. candidate must complete at least five units of graduate-level instruction in political theory.
- By the start of the fourth quarter in residence, each first-year graduate student submits to the student's adviser a statement of purpose. This statement indicates the student's proposed major concentrations of study, the courses taken and those planned to be taken to cover those fields, the student's plan for meeting language and/or skill requirements, plans for scheduling of comprehensive examinations and/or research papers, and, where possible, dissertation ideas or plans. This statement is discussed with, and must be approved by, the student's adviser. In the Autumn Quarter following completion of their first year, students are reviewed at a regular meeting of the department faculty. The main purposes of this procedure are, in order of importance: to advise and assist the student to realize his or her educational goals; to provide an incentive for clarifying goals and for identifying ways to achieve them; and to facilitate assessment of progress toward the degree.
- Students must take the comprehensive exams in two major fields by the end of their second year in the program. Students are expected to have passed these examinations and to have faculty approval of their research paper by the end of their second year.
- Upon completion of one research paper and two comprehensive exams in his or her two major concentrations, the student files an Application for Admission to Candidacy for the Ph.D. which details program plans and records. The University and the department expects that students be admitted to candidacy by the completion of their sixth quarter as a full-time student. Each second-year student is reviewed and considered for admission to candidacy in a meeting of the faculty that is typically held during the tenth week of Spring Quarter. Since completion of two comprehensive exams and a research paper are prerequisites for admission to candidacy, students should plan their first- and second-year studies so that these requirements are satisfied by the time of the faculty review meeting. In particular, students should submit their research paper to the relevant faculty readers no later than the start of Spring Quarter, since revisions of the paper are often required prior to obtaining faculty approval.
- During the third year, a formal dissertation proposal is submitted by the student to a thesis committee of three faculty members, including the principal adviser. The dissertation proposal requires approval by the student's dissertation adviser and the Director of Graduate Studies. Dissertation proposals must be approved by the end of the third year.
- A candidate for the Ph.D. in Political Science is required to serve as a teaching assistant (TA) in the department for a minimum of three quarters.
- Doctoral candidates who apply for the M.A. degree are awarded that degree on completion of the requirements outlined in the description of the M.A. program.
- The candidate must pass the University oral examination on the area of the dissertation at a time, after the passing of the written comprehensive examinations, suggested by the candidate's dissertation committee.
- The candidate must complete a dissertation satisfactory to the Dissertation Reading Committee and the University Committee on Graduate Studies.

PH.D. MINOR

Candidates in other departments offering a minor in Political Science select two concentrations in political science in consultation with the Director of Graduate Studies and submit to her or him a program of study for approval. Written approval for the program must be obtained from the Director of Graduate Studies before application for doctoral candidacy. Students are required to complete at least 20 units in Political Science courses. Two of these courses, in separate concentrations of political science, must be 300 level and above. All grades must be a GPA of 3.0 (B) or better. Candidates may be examined in their concentrations in the general oral examination by a member of the Department of Political Science, chosen in consultation with the Director of Graduate Studies.

COURSES

WIM indicates that the course satisfies the Writing in the Major requirements.

Summer Quarter—During Summer Quarter, the Department of Political Science offers a variety of courses and seminars. The specific offerings depend on the faculty available during the Summer Quarter.

The department uses the following course numbering system:

- 001-099 Introductory Courses
- 100-199 Intermediate Undergraduate Lecture Courses
- 200-299 Advanced Undergraduate Seminar Courses
- 300-400 Advanced Undergraduate/Graduate Courses
- 400-500 Graduate Courses

Course information is accurate when the *Stanford Bulletin* goes to press; however, students should be aware that there may be changes and should check the quarterly *Time Schedule* for up-to-date information.

INTRODUCTORY

POLISCI 1. Introduction to International Relations—Approaches to the study of conflict and cooperation in world affairs. Applications to war, terrorism, trade policy, the environment, and world poverty. Debates about the ethics of war and the global distribution of wealth. GER:3b

5 units, Aut (Tomz)

POLISCI 2. Introduction to American National Government and Politics—The role and importance of the ideal of democracy in the evolution of the American political system. American political institutions (the Presidency, Congress, and the Court) and political processes (the formation of political attitudes and voting) are examined against the backdrop of American culture and political history. The major areas of public policy in the current practice of the ideal of democracy. GER:3b

5 units, Win (Ferejohn, Fiorina)

POLISCI 3. Introduction to Political Philosophy—How to engage with philosophical questions concerning politics. Topics include justice, authority, freedom of speech, multiculturalism, and patriotism. GER:3a

5 units, Win (Stone)

POLISCI 4. Introduction to Comparing Political Systems—Understanding politics in major regime types (democratic, authoritarian, and communist) and how different types of politics affect economic development and state/society relations. GER:3b,4a

5 units, Spr (Oi)

POLISCI 14N. Ethics and War—Stanford Introductory Seminar. Preference to freshmen. The role of ethical considerations in statesmen's and soldiers' decisions about going to war and conduct in war. Comparison of just war theory in different religious traditions and political philosophies. Case studies in terrorism and violations of non-combatant immunity, the ethics of intervention and preventive war, and organizational implementation of ethical decisions. Recommended: concurrent enrollment in 114S. GER:3b

5 units, Win (Sagan)

POLISCI 16N. Politics of Economic Development—Stanford Introductory Seminar. Preference to freshmen. Why are some countries rich and others poor? What explains the policies that governments adopt, and how do those policies affect economic performance? Readings from political science and economics about Latin America and other regions. GER:3b

5 units, Spr (Tomz)

POLISCI 21N. The Evolution of Voting Rights in the U.S.—Stanford Introductory Seminar. Preference to freshmen. The evolution of voting rights in the U.S. from the 1965 Voting Rights Act to the present. Emphasis is on identifying conditions under which expansion was possible as a result of the removal of barriers. Current issues in the interpretation and implementation of provisions of the Voting Rights Act. Participation in a mock trial. GER:3b

5 units, Spr (Fraga)

POLISCI 21Q. The Presidency—Stanford Introductory Seminar. Preference to sophomores. The American presidency, including the history of the office, constitutional and statutory powers, electoral politics, relations with Congress and pursuit of legislation, the rise of the institutional presidency, management and control of the bureaucracy, leadership in foreign policy and war, formulation of the domestic agenda, appointments to the courts.

5 units (Moe) not given 2004-05

POLISCI 22Q. Politics of Bureaucracy—Stanford Introductory Seminar. Preference to sophomores. Introduction to the organization, activity, and performance of public bureaucracy. Topics: presidential and congressional control, interest group influence, budgetary politics, and bureaucratic routines.

5 units (Moe) not given 2004-05

POLISCI 32Q. Politics through Literary Lenses: Different Vantage Points—Stanford Introductory Seminar. Preference to sophomores. How political activity is understood through drama and novels, particularly utopian and dystopian novels. Do different genres such as drama or utopian writing offer different insights into politics? How do stories and myths function within the political arena, particularly myths of new beginnings, golden ages, and the possibility of perfection? Is the concreteness of literature compatible with the search for generalizations in political science? GER:3a

3 units, Win (Hansot)

POLISCI 45N. Civil War Narratives—Stanford Introductory Seminar. Preference to freshmen. Focus is on a new statistics-based theory to account for the susceptibility of countries to civil war. How to write a theory-based historical narrative. Students write and present an original historical narrative focusing on how well the theory explains a particular history and new factors to explain civil war onsets. GER:3b

5 units, Aut (Laitin)

POLISCI 46N. Contemporary African Politics—Stanford Introductory Seminar. Preference to freshmen. Focus is on the last decade. Patterns of economic collapse and recovery; shifts toward more democratic political systems; and increasing levels of political violence and civil conflict including warlordism and genocide. Trends across the continent, with emphasis on Sierra Leone's emergence from conflict and Zimbabwe's persistent political and economic decline. Students design strategies for diplomatic engagement in these environments to be presented to former U.S. policy makers at the conclusion of the course. GER:3b,4a

5 units, Aut (Weinstein)

POLISCI 48G. The Historical Roots of Modern East Asia—(Enroll in HISTORY 92A.)

5 units, Win (Sommer, Wigen)

POLISCI 48H. East Asia in the Age of Imperialism—(Enroll in HISTORY 92B.)

5 units (Staff) not given 2004-05

INTERMEDIATE UNDERGRADUATE LECTURES

INTERNATIONAL RELATIONS

Students interested in international relations are encouraged to take POLISCI 1, Introduction to International Relations. While not a formal prerequisite for many of the courses listed below, POLISCI 1 provides a desirable background for more advanced work.

The courses in international relations offered by the Department of Political Science can be divided into two groups: those dealing with global political, military, and economic problems; and those dealing with the foreign relations of specific nations or geographic regions. Students concentrating in international relations are encouraged to select their courses from both groups.

Students interested in a major in international relations are encouraged to refer to the "International Relations" section of this bulletin, which lists international relations courses in other departments.

POLISCI 110A. Sovereignty and Globalization—The relationship between globalization and the viability of state sovereignty, the development of international institutions, and the international distribution of wealth and security. GER:3b

5 units, *Win (Krasner)*

POLISCI 110B. Strategy, War, and Politics—Traditional and modern theories on the causes of war and sources of peace. Contrasting explanations for the origins of WW I and II; alternative theories of deterrence in the nuclear age; the causes of war in the Persian Gulf, ethnic conflicts, and terrorism in the post-Cold War era. GER:3b

5 units (*Sagan*) not given 2004-05

POLISCI 110C. America and the World Economy—American foreign economic policy. Issues: the evolution of American tariff and trade policy, the development of mechanisms for international monetary management, and American foreign investment policy reflected in the changing political goals pursued by American central decision makers. Prerequisite: 1 or equivalent. GER:3b

5 units (*Goldstein*) not given 2004-05

POLISCI 110D. War and Peace in American Foreign Policy—The causes of war in American foreign policy. Issues: international and domestic sources of war and peace; war and the American political system; war, intervention, and peace making in the post-Cold War period. GER:3b,WIM

5 units, *Spr (Schultz)*

POLISCI 111. Peace Studies—(Same as PSYCH 165.) Interdisciplinary. The challenges of pursuing peace in a world where the sources of conflict are many, and regional, ethnic, and religious antagonisms are rising. The art of creating and maintaining peace from historical, social, psychological, and moral perspectives. Goal is to illustrate the contributions of academic disciplines and critical analyses to the study of peace, and to prepare students to think critically and to act responsibly and effectively on behalf of peace. Students explore a conflict and offer contributions to the building of peace. Limited enrollment. GER:3b

5 units, *Spr (Bland, Ross, Holloway)*

POLISCI 111D. British Politics—Over the last two decades, Margaret Thatcher and Tony Blair have provoked major changes in policies, politics, and the institution of government. The impact of these changes on the world's oldest democracy. GER:3b,4a

5 units, *Spr (Dorfman)*

POLISCI 112. Japanese Foreign Policy—(Same as 312.) The origins of WW II in the Pacific; Japan's role in international security; the N. Korean nuclear crisis; Japan's evolving security policies; and the U.S.-Japan trade conflict. GER:3b,4a

5 units, *Aut (Okimoto)*

POLISCI 114R. Technology and National Security—(Enroll in MS&E 193/293.)

3 units, *Aut (Perry, Paté-Cornell)*

POLISCI 114S. International Security in a Changing World—The major international and regional security problems in the modern world. Interdisciplinary faculty lecture on the political and technical issues involved in arms control, the military legacy of the Cold War, regional security conflicts, proliferation of advanced weapons capabilities, ethnic conflicts, and terrorism. GER:3b

5 units, *Win (Sagan, Blacker, Perry)*

POLISCI 114T. Major Issues in International Conflict Management—Conflict prevention, mediation and implementation of peace agreements, peacekeeping, peacebuilding, and humanitarian intervention. Topics: ethical dilemmas of conflict management, evaluation of international, regional, and non-governmental organizations in conflict management, the future of the UN, and the use of economic sanctions. GER:3b

5 units (*Stedman*) not given 2004-05

POLISCI 116. History of Nuclear Weapons—(Same as HISTORY 101D.) The development of nuclear weapons and policies. How existing nuclear powers have managed their relations with each other. How nuclear has been avoided so far and whether it can be avoided in the future. GER:3b

5 units, *Spr (Holloway)*

POLISCI 135R. Political Theory and International Relations—For description, see "Political Theory" subsection below.

5 units, *Spr (Leca)*

AMERICAN POLITICS

POLISCI 120A. American Political Sociology and Public Opinion: Who We Are and What We Believe—First of team-taught, intermediate-level, three-part sequence designed to introduce students to topics in American politics and government. The sociology of the U.S. and the political beliefs and values of Americans. Students may enroll for one, two, or three quarters, but the course is cumulative so maximum benefit results from enrollment in the entire sequence. Completion of 2 is assumed but not required. GER:3b

5 units (*Fiorina, Sniderman*) not given 2004-05

POLISCI 120B. Parties, Interest Groups, the Media, and Elections—The role of political parties, interest groups, and the media in the American political system. Rules, resources, voter turnout, and vote choice in U.S. elections. GER:3b

5 units, *Aut (Sprague)*

POLISCI 120C. American Political Institutions: Congress, the Executive Branch, and the Courts—How politicians, once elected, work together to govern America. The roles of the President, Congress, and Courts in making and enforcing laws. Focus is on the impact of constitutional rules on the incentives of each branch, and on how they influence law. GER:3b

5 units, *Win (Rutten)*

POLISCI 120D. The Congress—Nomination and election, constituent relations, committees and parties, internal rules and norms, and policy formation. GER:3b

5 units, *Spr (Sprague)*

POLISCI 121. Urban Politics—Introduces the major actors, institutions, processes, and policies of sub-state government in the U.S., focusing primarily on city general-purpose governments through a comparative examination of historical and contemporary politics. The issues related to federalism, representation, voting, race, poverty, housing, and finances. Prerequisite: 2 or consent of instructor. GER:3b

5 units, *Win (Fraga)*

POLISCI 122. Introduction to American Law—(Same as AMSTUD 179, LAW 106.) For undergraduates. The structure of the American legal system including the courts; American legal culture; the legal profession and its social role; the scope and reach of the legal system; the background and impact of legal regulation; criminal justice; civil rights and civil liberties; and the relationship between the American legal system and American society in general. GER:3b

3-5 units, *Aut (Friedman)*

POLISCI 123. Politics and Public Policy—(Same as PUBLPOL 101.) The domestic policy making process, emphasizing how elected officials, bureaucrats, and interest groups shape government policies in areas including tax, environmental, and social welfare policy, given their goals and available tactics. How public policies are formulated and implemented. The results of this process using equity and efficiency criteria. Prerequisite: POLISCI 2. GER:3b

5 units, *Spr (Brady)*

POLISCI 124R. Judicial Politics and Constitutional Law: The Federal System—The impact of constitutional rules on policy making in the U.S. with a focus on structural issues such as separation of powers and federalism. Topics such as: the role of unelected judges in a democracy; the rule of law; and the constitutionality of the war in Iraq. Prerequisites: 2 or equivalent, and sophomore standing. GER:3b,WIM

5 units, *Aut (Rutten)*

POLISCI 124S. Judicial Politics and Constitutional Law: Civil Liberties—The role and participation of courts, primarily the U.S. Supreme Court, in public policy making and the political system. Judicial activity in civil liberty areas (religious liberty, free expression, race and sex discrimination, political participation, and rights of persons accused of crime). Prerequisites: 2 or equivalent, and sophomore standing. GER:3b

5 units, Win (Rutten)

POLISCI 124T. Legislatures, Courts, and Public Policy—(Same as PUBLPOL 124T.) How courts exert power and play a role in creating policy in the U.S. Can or should judges read their own values into law? Can the elected branches check the power of unelected judges? What is good government and how do courts fit into it? Focus is on the Civil Rights Act of 1964 examining the political maneuvers to pass it and recent Supreme Court decisions applying it to affirmative action.

5 units, Spr (Rutten)

POLISCI 126. Issues of Race and Minority Representation in American Politics—How the mass citizenry and organized interests are represented in American politics and the policy making process. Problems of representations in controversies over social and economic policies that evoke economic and ethnic cleavages in society. Problems of minority representation, including a comparison of the issues confronting Asian American, Chicano/a, Native American, and African American groups. Prerequisite: 2 or consent of instructor. GER:3b,4b

5 units, Win (Wong)

POLISCI 127. Organizations and Public Policy—(Enroll in PUBLPOL 102.)

5 units, Win (Wilson)

POLISCI 127R. California Government and Politics—(Enroll in PUBLPOL 188.)

5 units, Spr (Wilson)

POLISCI 127S. Mass Media Economics and Policy—(Enroll in PUBLPOL 172.)

4-5 units, Aut (Owen)

POLISCI 128. Colonial and Revolutionary America—(Enroll in HISTORY 165A.)

5 units, Aut (Rakove)

POLISCI 129. Special Projects: The Death Penalty, Human Biology, Law, and Policy—(Enroll in HUMBIO 166.)

3 units, Aut, Win, Spr (Abrams)

POLITICAL THEORY

POLISCI 130A. History of Ancient Political Thought I: Constructing and Questioning Political Obligation in the Ancient World—(Same as 330A.) Political philosophy in classical antiquity, focusing on canonical works of Plato, Aristotle, Cicero, and St. Augustine. Historical background. Topics include: political obligation, citizenship, and leadership; and tensions between political obligation and the claims of family, philosophy, and faith. GER:3a

5 units, Aut (Adcock)

POLISCI 130B. History of Political Thought II: Early Modern Political Thought, 1500-1700—(Same as 330B.) The development of constitutionalism, Renaissance humanism and the Reformation, changing relationships between church and states. Emphasis is on the relationships among political thought, institutional frameworks, and immediate political problems and conflicts. The usefulness of the history of political thought to political science. GER:3a

5 units, Win (Shapiro)

POLISCI 130C. History of Political Thought III: Freedom, Democracy, and Power—(Same as 330C.) Classic works in political theory on the themes of freedom, democracy, or power since the American and French revolutions. Readings include Kant, Hegel, Marx, Nietzsche, Dewey, and Foucault. GER:3a

5 units, Spr (Stone)

POLISCI 131. Children's Citizenship: Justice Across Generations—Focus is on social institutions that play a role in the moral and civic education of children including schools, families, and civil society. Content and goals of moral and civic education and how egalitarian and integrationist goals relate to them. How these institutions shape, promote, or hinder such education. Conflicts and priorities. Readings include political theorists on justice, the family, and education; court cases concerning public education. GER:3a

5 units, Spr (Adcock)

POLISCI 133. Ethics and Politics in Public Service—(Same as ETHICSOC 133.) Primarily for freshmen and sophomores who participate or intend to participate in service activities through the Haas Center or register for courses with service learning components. The basis for a connection between an undergraduate's service activities and academic experiences at Stanford. What does it mean to do public service? Why should or should not citizens do volunteer work? Is public service a good thing? The history, hazards, responsibilities, and dilemmas of doing public service. A historical context of public service work in the U.S., introducing the range of ethical concerns involved with service. GER:3a

5 units (Reich) not given 2004-05

POLISCI 134. Democracy and the Communication of Consent—(Enroll in COMM 136/236.)

4-5 units, Aut (Fishkin)

POLISCI 135R. Political Theory and International Relations—Classical political theories of modern international relations: Hobbes on sovereignty and the state of nature; Machiavelli, Rousseau, and Hegel on war and peace; the Grotrian countertradition; Kant and early cosmopolitanism; the emergence of the idea of international community. 20th-century debates: Schmitt, Morgenthau, and Aron; realism, neorealism, and liberal internationalism; constructivism, Rawls, and the law of people. The new cosmopolitanism and current concepts of an international community. Democratic peace and the Kantian legacy. Legalisation and rational design; international governance and the disaggregation of sovereignty. Policing the world or waging just wars.

5 units, Spr (Leca)

POLISCI 135S. International Human Rights Law: Cultural Exceptions and Enforceability—(Enroll in INTNLREL 140D, IPS 240D.)

5 units, Win (Stacy)

POLISCI 136S. Political Philosophy—(Enroll in ETHICSOC 171, PHIL 171/271.)

4 units, Spr (Schapiro)

POLISCI 137. Liberalism, Democracy, and Empire—19th-century Western liberalism focusing on diversity and ambivalence in liberal views of democracy in Europe and America, and on European imperial rule overseas. How would liberty fare under democratic conditions? Would extending suffrage to lower classes threaten constitutional rule and political stability? Could Europe's imperial endeavors be supported without violating core liberal commitments? Readings: Alexis de Tocqueville, John Stuart Mill, and other 19th-century liberal thinkers. GER:3b

5 units, Win (Adcock)

POLISCI 138. Modern Political Ideologies—Prominent political ideologies that define the terms of contemporary political discourse including liberalism, conservatism, feminism, and anarchism through the intellectual debates generated by the French Revolution. Readings include Price, Burke, Godwin, Wollstonecraft, and Paine. GER:3a

5 units (Stone) not given 2004-05

COMPARATIVE POLITICS

Undergraduate courses and seminars in comparative politics generally fall into two groups: those dealing with a particular country or region, and those dealing with major political problems or processes. Students are encouraged to take courses from both groups, and are also urged to do course work in more than one country or region.

POLISCI 140. Political Economy of Development—Emphasis is on the interplay between political economic processes, and national and international factors from Latin America, Africa, and Asia. Do governments provide the foundations for economic development? The role of the state in solving problems of violence and capital accumulation. GER:3b,4a

5 units, Spr (*Díaz-Cayeros*)

POLISCI 140L. China in World Politics—The implications of the rise of China in contemporary world politics and for American foreign policy, including issues such as arms and nuclear proliferation, regional security arrangements, international trade and investment, human rights, environmental problems, and the Taiwan and Tibet questions. GER:3b,4a

5 units, Spr (*Miller*)

POLISCI 141. The Global Politics of Human Rights—The global development and changing nature of human rights and the rise of an international human rights movement. Conflicts between national sovereignty and rights, and among types of rights. Case studies include genocide in Rwanda, holding torturers accountable in Chile and El Salvador, factory workers versus Nike, and the rights of women in S. Africa. GER:3b

5 units, Win (*Karl*)

POLISCI 141R. Russian Politics—The evolution of the Russian political system including the Soviet era, reform attempts from Khrushchev to Gorbachev, and the collapse of the USSR. Post-communist political institutions including the Russian federal system, executive-legislative relations, political parties, and lobbies; social and economic conditions and the post-communist relationship between political and economic reform; and foreign relations with the former Soviet states and the West. GER:3b,4a

5 units, Aut (*Dakin*)

POLISCI 142. Political Economy of Western Europe—Analytical and historical introduction to the political economy of W. Europe. Fundamental differences in economic performance are explained by examining the relative importance of structural institutional variables and of the strategic choices of key political actors. Topics: macroeconomic policy, wage determination and income inequality, welfare state expansion and retrenchment, European integration. Readings focus on Britain, Germany, and Sweden. GER:3b,4a

5 units (*Mares*) not given 2004-05

POLISCI 142R. Representative Government in Europe—How does representative government in European countries differ from the U.S.? How electoral institutions, party systems, and structures of interest group representation differ across European countries, and between Europe and the U.S. How these variations in institutional configuration influence the structure and content of ideological debate and mediate its influence on the policy making process. How European integration is altering the structure of citizen representation in EU member states. GER:3b

5 units, Spr (*Wren*)

POLISCI 144S. Democracies and Autocracies—The study of political regimes. The main characteristics of democratic versus authoritarian regimes. What determines that political order is established in the form of democracy or authoritarianism? How democracies and autocracies operate; how each regime achieves political order, adopts public decisions, and impacts economic performance. GER:3b

5 units, Aut (*Magaloni*)

POLISCI 145. Politics and Development in Latin America—Political, economic, and social development in Brazil, Mexico, Cuba, and Argentina. Emphasis is on historical and comparative analyses and policy and theoretical issues such as ideologies of development, democracy and its alternatives, constraints on national autonomy, and civil-military, state-society, and state-market relations. GER:3b,4a

5 units, Win (*Packenham*)

POLISCI 147. Comparative Democratic Development—Social, cultural, political, economic, and international factors affecting the development and consolidation of democracy in historical and comparative perspective. Individual country experiences with democracy, democratization, and regime performance. Emphasis is on the third wave of democratization over the past three decades and contemporary possibilities for democratic change. GER:3b,4a

5 units, Spr (*Diamond*)

POLISCI 148. Chinese Politics: The Transformation and the Era of Reform—(Same as 348.) The content, process, and consequences of reform in China from 1976 to the present. Changes in property rights, markets, credit, and the role of the state in economic development. For advanced undergraduate students and beginning graduate students. GER:3b,4a,WIM

5 units, Win (*Oi*)

POLISCI 148G. Asia-Pacific Transformation—(Enroll in SOC 167A.)

5 units, Win (*Shin*)

POLISCI 148S. The U.S. and Asia During the Cold War—International relations perspective. WW II and its impact on international relations; the efforts of Allied statesmen to design a stable postwar order; the Chinese civil war; the American occupation of Japan; the Korean War; S.E. Asian independence struggles; the American alliance system in the 50s, the Sino-Soviet alliance; Indo-Pakistani conflicts; the Vietnam War; strategic realignment in the 70s; and the legacy of the Cold War on the region's international agenda and American policy priorities. The relevance of the region to the international system. GER:3b,4a

5 units, Aut (*Miller*)

POLITICAL METHODOLOGY

POLISCI 150A. Political Methodology I—(Same as 350A.) Introduction to probability and statistical inference, with applications to political science and public policy. Prerequisite: elementary calculus. GER:2c

5 units, Aut (*Wand*)

POLISCI 150B. Political Methodology II—(Same as 350B.) Understanding and using the linear regression model in a social-science context: properties of the least squares estimator; inference and hypothesis testing; assessing model fit; presenting results for publication; consequences and diagnosis of departures from model assumptions; outliers and influential observations, graphical techniques for model fitting and checking; interactions among exploratory variables; pooling data; extensions for binary responses. GER:2c

5 units, Win (*Jackman, Rivers*)

POLISCI 150C. Political Methodology III—(Same as 350C.) Models for discrete outcomes, time series, measurement error, and simultaneity. Introduction to nonlinear estimation, large sample theory. Prerequisite: 150B/350B.

3-5 units, Spr (*Jackman, Rivers*)

POLISCI 151A. Doing Political Science—For students planning a major in Political Science. An introduction to social science methodological approaches, from case studies and formal models, to the study of politics and government. Beneath the diversity of means that political scientists use to pursue knowledge lies a common language, core concepts, and scholarly goals. Concepts and their use through the research of Stanford Political Science professors. In addition to the instructors, 6-8 other faculty appear in various course sessions. Goal is to prepare students to do political science, not just study it. GER:2c

5 units (*Fiorina, Jackman*) not given 2004-05

POLISCI 151B. Data Analysis for Political Science—Elementary analysis of quantitative data for political science: operationalization of concepts, measurement, scale construction, finding and pooling/merging data, cross-tabulations, tests of association, comparison of means, correlation, scatterplots, and regression models. How to present the results of data analysis in research reports, essays, and theses. Emphasis is on getting and using data with appropriate statistical software. Prior mathematics not required. GER:2c

5 units (Jackman) not given 2004-05

POLISCI 152. Introduction to Game Theoretic Methods in Political Science—(Same as 352.) Concepts and tools of non-cooperative game theory developed using political science questions and applications. Formal treatment of Hobbes' theory of the state and major criticisms of it; examples from international politics. Primarily for graduate students; undergraduates admitted with consent of instructor.

5 units, Aut (Fearon)

ADVANCED UNDERGRADUATE SEMINARS INTERNATIONAL RELATIONS

POLISCI 215. Explaining Ethnic Violence—What is ethnic violence and why does it occur? Should elite machinations, the psychology of crowds, or historical hatreds be blamed? Case studies and theoretical work on the sources and nature of ethnic violence. GER:3b,WIM

5 units, Aut (Fearon)

POLISCI 216R. The Political Economy of Energy Policy—How political and organizational forces determine outcomes in oil, gas, and electricity markets rather than economic or technological imperatives. Case studies from energy policy in the U.S. and overseas illustrate theories. Topics include: the regulation of U.S. oil production; international oil trading and OPEC; antitrust regulation in oil and electricity markets; market competition for electricity; global warming; and supplying energy to low-income areas. GER:3b

5 units, Win (Victor)

POLISCI 218. U.S. Relations in Iran—The evolution of relations between the U.S. and Iran. The years after WW II when the U.S. became more involved in Iran. Relations after the victory of the Islamic republic. The current state of affairs and the prospects for the future. Emphasis is on original documents of U.S. diplomacy (White House, State Department, and the U.S. Embassy in Iran). Research paper. GER:3b

5 units, Aut (Milani)

AMERICAN POLITICS

POLISCI 221R. Urban Policy—Public finance, housing, education, transportation, and crime in major metropolitan areas in the U.S. Students are placed in internships in government departments, social service agencies, or community-based organizations. Primary requirement is a policy brief integrating theory with the internship experience. GER:3b,4b

5 units (Fraga) not given 2004-05

POLISCI 221S. Civic Capacity and Urban Youth—The logic and possibilities of mobilizing urban youth to overcome the decline in civic engagement across American society. Can youth be trained to be effective advocates for their interests in education? Can they be trained to be effective advocates for their interests in local government generally? If youth are successfully mobilized, can this serve as a catalyst to mobilize their parents and other adults? Class requirements include an internship of at least 7 hours per week in the John W. Gardner Center for Youth and their Communities. GER:3b,4b,WIM

5 units (Fraga) not given 2004-05

POLISCI 221T. Politics of Race and Ethnicity in the United States—Race and ethnicity issues used to understand current challenges to political development of the U.S. Focus is on political institutions and how current issues such as campaigning, affirmative action, and voting rights operate within parameters set by these institutions. Fundamental national values underlying current notions of identity, citizenship, justice, and the public interest. GER:3b,4b

5 units, Win (Fraga)

POLISCI 222S. Topics in Constitutional History—(Same as HISTORY 250B.) Topics in the history of the American Constitution and its interpretation, including the invention of the concept of the written constitution in the Revolutionary era, the crisis of Civil War and Reconstruction, and the controversies over interpretation and the rights revolution in the 20th century. GER:3b,4b

5 units (Rakove) not given 2004-05

POLISCI 223R. Philanthropy: Effecting Social Change and Innovation in the Public Sector—(Enroll in URBANST 122.)

4 units, Aut (Arrillaga)

POLISCI 223S. The Imperial Temptation: U.S. Foreign Policy in a Unipolar World—How the collapse of the Soviet Union liberated the U.S. from the constraints of bipolarity. How current policy fits into earlier traditions such as Wilsonianism or realism. Normative questions; what is America's proper role in the world? GER:3b

5 units, Aut (Joffe)

POLISCI 225R. Black Politics in the Post-Civil Rights Era—The shift among Black Americans from protest to politics. Emphasis is on the development and use of political resources as means to achieve policy objectives. Topics: political attitudes and participation, voting rights and representation, party politics, multiracial coalition building. GER:3b,4b

5 units, Win (Gay)

POLISCI 226S. Asian Americans in Politics—The participation and representation of Asian Americans in American politics at the national, state, and local levels. The politics of immigration, civil rights, affirmative action, and language. Multi-ethnic and multi-issue coalitions. Comparative perspectives on Asian ethnic politics in the U.S., Canada, and Australia. GER:3b,4b

5 units, Win (Wong)

POLITICAL THEORY

POLISCI 231S. Contemporary Theories of Justice—Social and political justice and contemporary debates in political theory. Recent works that develop the principles of justice, and the political arrangements that best satisfy their requirements. Limited enrollment. GER:3a,WIM

5 units, Win (Stone)

POLISCI 232. Introduction to Civil Society and the Nonprofit Sector—(Enroll in PUBLPOL 189, URBANST 121.)

2-4 units, Spr (Sievers)

POLISCI 234. Democratic Theory: Normative and Empirical Issues—(Enroll in COMM 138/238.)

4-5 units (Fishkin) not given 2004-05

COMPARATIVE POLITICS

POLISCI 240T. American Efforts at Promoting Democracy Abroad: Theory and Reality—Given at Stanford in Washington. Theoretical and intellectual debates about democracy promotion; realism versus liberalism. The evolution of these debates with attention to the Cold War, the 90s, and American foreign policy after 9/11. Tools for and bureaucratic struggles over how to promote democracy. Contemporary case studies.

5 units, Spr (McFaul)

POLISCI 241S. Regime Change: Comparative Theories—Comparison of structural and actor-centric theories, and evolutionary versus revolutionary models. Emphasis is on theories of democratization and revolution. Case studies from the 20th and 21st century. GER:3b,4a

5 units (McFaul) not given 2004-05

POLISCI 242T. Social Protection Around the World—The political origin of differences in and recent challenges faced by social protection policies across developed and developing countries. Why some countries provide old-age or sickness benefits to all citizens while others offer no protection during employment-related risks. The relative importance of economic, political, and institutional variables in explaining these differences in outcomes. Prerequisite: 4.

5 units, Aut (Mares)

POLISCI 242U. Varieties of Capitalism—Core differences in institutions and policies across advanced industrialized democracies. Are there meaningful distinctions among models of capitalism? Do these differences persist in the face of economic globalization? Topics: industrial relations, corporate governance, and social insurance. Prerequisite: 4. GER:3b
5 units, Aut (*Mares*)

POLISCI 244R. Political Economy of Disease: AIDS in Historical Perspective—Demographic, economic, cultural, and political changes in the wake of AIDS. The social dimensions of infectious diseases and epidemics; the impact of epidemics on political and economic institutions; and the political economy of responses to the AIDS crisis. Students conduct original research on causes and/or consequences of AIDS or AIDS-related policies. GER:3b
5 units, Win (*Weinstein*)

POLISCI 245R. Politics in Modern Iran—Modern Iran has been a smithy for political movements, ideologies, and types of states. Movements include nationalism, constitutionalism, Marxism, Islamic fundamentalism, social democracy, Islamic liberalism, and fascism. Forms of government include Oriental despotism, authoritarianism, Islamic theocracy, and liberal democracy. These varieties have appeared in Iran in an iteration shaped by history, geography, proximity to oil and the Soviet Union, and the hegemony of Islamic culture. GER:3b,4a
5 units, Win (*Milani*)

POLISCI 245S. Islam and the West—Neither the West nor Islam has appeared in monolithic form, nor has the relative power and vitality of each side remained constant. The relationship in the Middle Ages revolved around power and domination, and since the Renaissance around modernity. Focus is on Muslims of the Middle East. GER:3b,4a
5 units, Spr (*Milani*)

POLISCI 246R. Market-Oriented Reform and Development in Latin America—Preference to juniors and seniors. Theoretical and policy approaches to Latin American development in recent decades emphasizing policies since the 80s and their effects on economic, social, and political development. GER:3b
5 units, Spr (*Packenhams*)

POLISCI 247S. Politics and Economic Policy in Advanced Industrial Democracies—Political economic approaches to patterns of economic policy making and performance in the advanced industrial democracies of W. Europe and N. America. What is the role of political ideology and government partisanship in influencing economic outcomes? How do the political parties interact with organized interest groups in the formation of economic strategies? Can voters influence patterns of economic policy making and how is this influence felt? What are the cross-national impacts of globalization and the increasing openness of trade and capital markets? What constraints are placed on domestic political actors by the development of supranational political organizations like the EU?
5 units, Spr (*Wren*)

POLISCI 247T. The Politics of the European Union—The origins and the current structure of the EU. The effects of the EU on domestic politics, the electoral landscape, the distribution of political power, the power of national governments to formulate public policy, and economic and social policies. Current issues in EU politics including the creation of the EU constitution; the enlargement of the EU to include countries from the former Soviet bloc; the future of European welfare states; and the EU's military role. GER:3b,4a
5 units (*Wren*) not given 2004-05

POLISCI 248. Mexican Politics—Why did Mexico fail to eliminate poverty and destitution despite resources channeled to that end and a rhetoric of social justice inherited from the Revolution? The durability of the political regime, the peculiar characteristics of the Mexican process of democratization, and the regime's incentives to redress ancestral problems of inequality and destitution. Emphasis is on crafting research projects on the political economy of Mexican development, and hypothesis testing with empirical data. GER:3b,4a,WIM
5 units, Spr (*Díaz-Cayeros*)

POLISCI 248S. Latin American Politics—Fundamental transformations in Latin America in the last two decades: why most governments are now democratic or semidemocratic; and economic transformation as countries abandoned import substitution industrialization policies led by state intervention for neoliberal economic policies. The nature of this dual transformation. GER:3b
5 units, Spr (*Magaloni*)

RESEARCH

POLISCI 299A,B,C. Senior Project—Independent research towards a senior honors thesis. See "Honors Program" above.
3-5 units, Aut, Win, Spr, Sum (*Staff*)

POLISCI 299Q. Junior Research Seminar—For students interested in writing a senior honors thesis. Finding a manageable topic and adviser.
2 units, Win (*Rutten*)

POLISCI 299R. Senior Research Seminar—Required of students writing honors theses. Focus is on acquiring research skills and developing an appropriate research design. WIM
3 units, Aut (*Rutten*)

POLISCI 299S,T. Senior Honors Tutorial—Required of students writing honors theses. Focus is on solving problems in writing a thesis such as keeping on schedule and rewriting drafts. Students work with other honors students and graduate student tutors.
2 units, Win, Spr (*Staff*)

ADVANCED UNDERGRADUATE/GRADUATE INTERNATIONAL RELATIONS

POLISCI 310A. International Relations Theory, Part I—First of a three-part graduate sequence. History of international relations, current debates, and applications to problems of international security and political economy.
5 units, Aut (*Tomz*)

POLISCI 310B. International Relations Theory, Part II—Second of a three-part graduate sequence. History of international relations theory, current debates, and applications to problems of international security and political economy. Prerequisite: 310A.
5 units, Win (*Schultz*)

POLISCI 310C. Research in International Relations—Third of a three-part graduate sequence. Focus is on developing research papers begun in 310A or B, and exploring active areas of research in the field. Prerequisite: 310B.
3-5 units, Spr (*Goldstein*)

POLISCI 311A,B. Workshop in International Relations—For graduate students. Contemporary work. Organized around presentation of research by students and outside scholars. May be repeated for credit.
1-5 units, Aut, Win (*Goldstein, Tomz*)

POLISCI 312. Japanese Foreign Policy—(For graduate students; see 112.)
5 units, Aut (*Okimoto*)

POLISCI 312R. Domestic Politics and International Conflict—Theoretical and empirical research on the effects of domestic politics and political institutions on the incidence, outcome, and resolution of international conflict. Topics include the democratic peace, diversionary conflict, economic sources of war and peace, domestic influences on war outcomes, and the politics of resolving international rivalries.
5 units, Spr (*Schultz*)

POLISCI 314S. Decision Making in U.S. Foreign Policy—(Same as IPS 314S.) Priority to students in International Policy Studies. Formal and informal processes in U.S. foreign policy decision making. The formation, conduct, and implementation of policy, emphasizing the role of the President and executive branch agencies. Theoretical and analytic perspectives; case studies. Policy memorandum and substantial research paper or take-home final.
5 units, Spr (*Blacker*)

POLISCI 316. International History and International Relations Theory—(Same as HISTORY 201D/301D.) Texts that relate the theory and history of international relations. GER:3b

5 units, Win (*Holloway*)

POLISCI 317R. The End of the USSR: Causes and Consequences—(Same as REES 317R.) The dissolution of the USSR and the emergence of 15 independent states in its place as the culmination of interrelated developments precipitated by Gorbachev's perestroika: the end of the Communist system, the Soviet empire in E. Europe, and the cold war. Explanations of the causes of Gorbachev's reforms including domestic and international influences, the factors which shaped it, and unanticipated consequences at home and abroad.

5 units, Win (*Lapidus*)

POLISCI 318S. State Building—Past and present efforts by external actors to influence domestic authority structures. Topics may include: colonialism; protection of minority rights in the 19th and first half of the 20th century; U.S. intervention in the Caribbean and Central America; U.S. and Soviet intervention in Europe after WW II; Afghanistan; and Iraq. For Ph.D. students; others with consent of instructor.

5 units, Win (*Krasner*)

AMERICAN POLITICS

POLISCI 321. Creating the American Republic—(Same as HISTORY 272/372.) Concepts and developments in the late 18th-century invention of American constitutionalism; the politics of constitution making and ratifying; theories of constitutional interpretation including originalism; early notions of judicial review. Primary and secondary sources. WIM

5 units (*Rakove*) not given 2004-05

POLISCI 322. Campaign Finance and Elections—The strategies and behavior of special interest groups, parties, candidates, and voters in the U.S. Emphasis is on statistical models and empirical tests of formal models. Prerequisite: 350B; 351 sequence or 352; or equivalents.

5 units, Aut (*Wand*)

POLISCI 323R. The Press and the Political Process—(Same as COMM 160/260.) Analysis of the role of mass media and other channels of communication in political and electoral processes. GER:3b

4-5 units, Aut (*Iyengar*)

POLISCI 323S. Analysis of Political Campaigns—(Same as COMM 262.) The evolution of American political campaigns, and the replacement of the political party by the mass media as intermediary between candidates and voters. Academic literature on media strategies, the relationship between candidates and the press, the effects of campaigns on voter behavior, and controversies concerning inconsistencies between media campaigns and democratic norms. Do media-based campaigns enable voters to live up to their civic responsibility? Has the need for well-financed campaigns increased the influence of elites over the nomination process? Have ordinary citizens become disengaged by their limited involvement? Discussions in context of 2000 campaign. GER:3b

4-5 units (*Iyengar*) not given 2004-05

POLISCI 324R. Questionnaire Design for Surveys and Laboratory Experiments: Social and Cognitive Perspectives—(Enroll in COMM 239.)

4 units, Spr (*Krosnick*)

POLISCI 325S. Race and Place in American Politics—The political opinions of individuals cannot be explained apart from the environments within which they occur. How features of neighborhood environments, including their racial and socioeconomic composition, shape the politics and political behavior of Americans. How shifting patterns of residential segregation and suburbanization affect the attitudes and behaviors of African Americans and whites.

5 units, Spr (*Gay*)

POLISCI 326R. Urban Politics and Public Policy—Major theoretical approaches regarding democracy, participation, representation, economic development, and governance.

5 units, Spr (*Fraga*)

POLISCI 327R. American Politics of Race and Ethnicity: Comparative Perspectives—The political participation and representation of American and ethnic minority groups. Comparative analysis of the political experiences of African Americans, Latinos, Asian Americans, and Native Americans in late 20th-century America. Contemporary policy issues of importance to minority populations.

5 units, Aut (*Wong*)

POLITICAL THEORY

POLISCI 330A. History of Ancient Political Thought I: Constructing and Questioning Political Obligation in the Ancient World—(For graduate students; see 130A.)

5 units, Aut (*Adcock*)

POLISCI 330B. History of Political Thought II: Early Modern Political Thought, 1500-1700—(For graduate students; see 130B.)

5 units, Win (*Shapiro*)

POLISCI 330C. History of Political Thought III: Freedom, Democracy, and Power—(For graduate students; see 130C.)

5 units, Spr (*Stone*)

POLISCI 332. American Social Science and the Democratic Polity—The history of American social science, particularly political science, from its 19th century professionalization to the 60s focusing on the study of democracy. What makes a polity democratic. The character of the American polity, the role of academic social science in it, and its place in world politics.

5 units, Spr (*Adcock*)

POLISCI 333. Topics in Democratic Theory—(Same as PHIL 377.) Modern approaches to democratic theory including liberal, communitarian, republican, and participatory theories beginning with the works of Locke, Rousseau, and Mill. Writers: John Rawls, Ronald Dworkin, Jeremy Waldron, Joshua Cohen, Habermas, Petit, Iris Marion Young, Ian Shapiro, and Amy Gutman.

3-5 units, Win (*Ferejohn, Satz*)

POLISCI 334R. Democracy, Justice, and Deliberation—(Enroll in COMM 236G/336G.)

1-5 units (*Fishkin*) not given 2004-05

POLISCI 334S. Democracy, Press, and Public Opinion—(Enroll in COMM 344.)

1-4 units, Spr (*Fishkin*)

POLISCI 335. Analytical and Continental Perspectives on Political Theory—Analytical theory as more ahistorical and concerned with logic and coherence; continental theory as more historical and concerned with metaphysical issues. The scientific and political worlds in which they are rooted; truth and justice; order and peace. Student groups assess theoretical and practical differences by selecting common political issues such as democratic theory, minority rights, the meaning of legislation, the judicialization of politics, gender issues, the welfare state, environmental issues, institutional design, hegemony, war, and peace.

5 units, Spr (*Leca*)

POLISCI 338G. Political Anthropology from Rousseau to Freud—(Enroll in FRENGEN 256E.)

3-5 units, Spr (*Dupuy*)

COMPARATIVE POLITICS

POLISCI 340R. Political Economics—How governments collect revenue, allocate spending, and obtain credit, as determined by variations in institutional and political conditions. In a democracy, the emphasis is on the provision of public goods and services and representative accountability. In less democratized settings, the emphasis lies in the extractive capacity of the state, the temporal horizons of rulers, and the purchase of political support with money.

5 units, Aut (*Díaz-Cayeros*)

POLISCI 340S. Political Economy of Post-Communism—The sources of the collapse of the communist states in E. Europe and the former Soviet Union. Issues facing the formation and consolidation of post-communist states and societies including democratization, privatization, nationalism, and foreign relations between newly independent states. Models and historical analogues for analyzing the emergence of post-communist politics.

5 units (McFaul) not given 2004-05

POLISCI 341T. Comparative Democratization and Regime Change—Issues of democracy, its definition, problems of transition and consolidation, and comparison. The relationship between democracy and the military, the economy, and the interstate system.

5 units, Aut (Karl)

POLISCI 344S. Comparative Political Institutions—Overview of existing political institutions and their impact on political-economic outcomes. The roles of political institutions and what determines their stability, how they are chosen, and which processes enable their transformation over time. The main variances in institutional settings, emphasizing the menu of democratic institutions, including parliamentary, semi-presidential, and presidential systems; electoral rules; bicameralism; federalism; and legislative-executive relations. The effect of political institutions on economic growth and political stability.

3-5 units, Win (Magaloni)

POLISCI 344U. Political Culture—An approach to culture that emphasizes its equilibrium attributes by working through the relationship of culture, choice, coordination, and common knowledge. Implications for the study of political processes and institutions. Required paper on the role of culture in a political institution.

5 units (Laitin) not given 2004-05

POLISCI 345R. Political Economy of Japan—Institutions and processes in the political organization of economic activity in Japan. The interaction of public and private sector institutions in the growth of Japan's postwar economy. The organization and workings of key economic ministries and agencies of the government, private sector business groupings, and public policy making. Comparison of Japan's political economy before the bursting of the bubble in 1990-91 with the current situation; why it fell into stagnation and why it has taken Japan so long to recover.

3-5 units, Aut (Okimoto)

POLISCI 345S. Japanese Politics—Major theories used to explain the structure and dynamics of Japanese politics, including the developmental state, bureaucratic politics, interest group coalitions, single party domination, network theory, and rational choice. Student presentations.

5 units (Staff) not given 2004-05

POLISCI 346S. The Logic of Authoritarian Government—If authoritarianism is less economically efficient and a less stable form of political organization than democracy, then why historically are there more authoritarian governments than democracies? The theoretical and empirical literature on authoritarian governments, and related literatures on the microeconomic analysis of property rights and credible commitments.

5 units, Win (Haber)

POLISCI 347S. Comparative Political Economy of Developed Democracies—Theoretical approaches to fundamental differences in economic policy and performance across the advanced industrial democracies. What is the relative importance of government partisanship and ideology, social cleavages, and institutional structures in explaining patterns in economic policy and outcomes? How do these political models compare with models emphasizing economic variables such as capital market integration, trade openness, or technological change?

3-5 units (Wren) not given 2004-05

POLISCI 348. Chinese Politics: The Transformation and the Era of Reform—(For graduate students; see 148.)

5 units, Win (Oi)

POLISCI 348H. China Under Mao—(Enroll in SOC 117A/217A.)

5 units, Aut (Walder)

POLITICAL METHODOLOGY

POLISCI 350A. Political Methodology I—(For graduate students; see 150A.)

5 units, Aut (Wand)

POLISCI 350B. Political Methodology II—(For graduate students; see 150B.)

5 units, Win (Jackman, Rivers)

POLISCI 350C. Political Methodology III—(For graduate students; see 150C.)

3-5 units, Spr (Jackman, Rivers)

POLISCI 351A. Foundations of Political Economy—(Same as POLECON 680.) Emphasis is on formal models of collective choice, public institutions, and political competition. Topics include voting theory, social choice, institutional equilibria, agenda setting, interest group politics, bureaucratic behavior, and electoral competition.

4 units, Aut (Shotts)

POLISCI 351B. Economic Analysis of Political Institutions—(Same as POLECON 681.) Applying the techniques of microeconomic analysis and game theory to the study of political behavior and institutions, including information economics, games of incomplete information, sequential bargaining theory, repeated games, and rational expectations. Applications include agenda formation in legislatures, the implications of legislative structure, government formation, lobbying, electoral competition and interest groups, the control of bureaucracies, interest group competition, and collective choice rules.

4 units, Win (Baron)

POLISCI 351C. Applied Formal Models: Governmental Decision Making—(Same as POLECON 682.) Focus is on empirical applications of formal models to the study of legislatures. How such skills can be applied to obtain a more comprehensible and systematic understanding of collective decision making. Prerequisites: 351A,B, or equivalent technical skills.

4 units, Spr (Krehbiel)

POLISCI 352. Introduction to Game Theoretic Methods in Political Science—(For graduate students; see 152.)

5 units, Aut (Fearon)

POLISCI 353A,B,C. Workshop in Statistical Modeling—Theoretical aspects and empirical applications of statistical modeling in the social sciences. Guest speakers. Students present a research paper. Prerequisite: 350B or equivalent.

1-5 units, Aut, Win, Spr (Jackman, Rivers, Wand)

POLITICAL ORGANIZATIONS

POLISCI 362. New Economics of Organization—(Same as OB 686.) Survey of economic approaches to organization, emphasizing theory and application, with attention to politics.

5 units, Spr (Weingast)

POLISCI 365. Organizational Decision Making—Behavioral theories of organization. Emphasis is on the institutional applications of bounded rationality. Models of incrementalism; evolutionary models of change; organizational learning. The differences between predictions of theories of perfect rationality and those of imperfect rationality. Organizational responses (constructive and pathological) to constraints on information processing. Institutional contexts; public agencies and firms.

5 units, Spr (Bendor)

GRADUATE

POLISCI 411A,B,C. Research Seminar in International Security and Social Science—Advanced graduate students, faculty, and visitors present current research on contemporary problems in international security.

1 unit, Aut, Win, Spr (Eden, Sagan)

POLISCI 420A. Approaches to the Study of American Politics—Theories of American politics, focusing on Congress, the presidency, the bureaucracy, and the courts.

5 units, Aut (Weingast)

POLISCI 420B. Topics in American Political Behavior—For graduate students with some background in American politics embarking on their own research. Current research in American politics, emphasizing political behavior and public opinion. Possible topics: uncertainty and ambivalence in political attitudes, heterogeneity in public opinion, the structure of American political ideology, political learning, the media as a determinant of public opinion, and links between public opinion and public policy.

5 units, Win (Gay)

POLISCI 420C. American Political Institutions—Field seminar. Prerequisites: 420A,B

5 units, Spr (Ferejohn)

POLISCI 422. Campaigns, Elections, and Public Opinion—Research seminar. Frontiers in mass political behavior. Sources include data sets from the 2004 election cycle. Prerequisite: 420B or equivalent.

5 units, Win (Fiorina)

POLISCI 422A,B. Research Seminar in American Political Institutions—Two quarter sequence. Recent work on American institutions including Congress, the courts, and administrative agencies. Some attention to issues of federalism.

5 units (Ferejohn) not given 2004-05

POLISCI 424. Introduction to Political Psychology—Current issues in the study of public opinion and political psychology, focusing particularly on the design and analysis of experiments embedded in survey research. Focus is on reviewing the research literature one week, then analyzing relevant data sets the next.

5 units (Sniderman) not given 2004-05

POLISCI 427. The Political Economy of Immigration—The theoretical and empirical literature on migration politics and the economic causes and effects of migration. The political economy of American immigration in comparative perspective. The immigration dilemmas of governments in W. Europe, Asia, and Australia.

5 units, Spr (Wong)

POLISCI 435. Topics in the Philosophy of Social Science—Topics relevant to present-day political science practice including: the foundation of probability theory; theories of scientific progress; the scope and limits of rational choice theory; and interpretive social science.

5 units (Stone) not given 2004-05

POLISCI 436. Rational Choice—The scope and limits of rational choice theory. Possible topics: explanatory and normative uses of rational choice; self-interest versus altruism; the nature of social norms; incommensurable choices; and bounded rationality.

5 units, Spr (Stone)

POLISCI 440A. Theories in Comparative Politics—Required of all Political Science Ph.D. students with comparative politics as a first or second concentration; others by consent of instructor. Theories addressing major concerns in the comparative field including democracy, regime change, the state, revolutions, national heterogeneity and economic performance.

5 units, Aut (Laitin)

POLISCI 440B. Comparative Political Economy—Required of all Political Science Ph.D. students with comparative politics as a first or second concentration; others by consent of the instructor. Micro- and

macro-level explanations for variation in economic policies and outcomes. The formation of cleavages and political coalitions, and the economic and political consequences of variation in partisanship, political institutions, regime types, and economic openness.

5 units, Win (Haber)

POLISCI 440C. Methods in Comparative Politics—Required of all Political Science Ph.D. candidates with comparative politics as a first or second concentration; others by consent of instructor. Current methodological standards in comparative politics. Students develop their own research design that meets these standards.

5 units, Aut, Spr (Laitin)

POLISCI 440D. Workshop in Comparative Politics—Faculty, guest speakers, and graduate students conducting research in comparative politics present work-in-progress. Graduate students may enroll for up to 5 total units apportioned by quarter. Auditors welcome. Graduate students whose major or minor field is comparative politics must make at least one presentation to the seminar.

1-5 units, Aut (Díaz-Cayeros, Magaloni),

Win (Díaz-Cayeros, Mares), Spr (Magaloni, Mares)

POLISCI 441. Politics of Development—Theoretical understanding of how political processes and institutions are reflected in poverty and inequality; the creation of land, labor, and credit markets; and the configuration of fiscal, monetary, and trade policies. The politics of developing countries with emphasis on contrasts between Latin America and Africa.

5 units (Díaz-Cayeros) not given 2004-05

POLISCI 442. Qualitative and Field Methods—Qualitative methods for data gathering and analysis in political science. Theoretical literature on research design; challenges associated with analysis; techniques for fieldwork. Topics include case selection, levels of analysis, process tracing, ethical concerns in the field, participant observation, interviewing, archival research, survey design, and field experiments. Prerequisites: 440A,B,C.

5 units, Win (Weinstein)

POLISCI 443R. Corporate Restructuring and Governance in Asia—The political economy of state-business relations and attempts at reform. Problems that have emerged since the 1997 financial crisis and the reforms and restructuring that have been introduced. Focus is on the politics that surround the reforms and their consequences for corporate governance. Cases include China, Japan, and Korea.

5 units (Oi) not given 2004-05

POLISCI 443S. Political Economy of Reform in China—The content, process, and problems of China's post-Mao reforms. Changes in property rights, markets, credit, and the role of the state in economic development. Comparative insights about reform in the Chinese communist system that distinguishes it from the experience of regimes in Eastern Europe and the former Soviet Union. Readings in Chinese and English. Prerequisite: basic knowledge of the government and politics of post-1949 China.

5 units, Spr (Oi)

OVERSEAS STUDIES

Courses approved for the Political Science major and taught overseas can be found in the "Overseas Studies" section of this bulletin, or in the Overseas Studies office, 126 Sweet Hall.

BERLIN

POLISCI 110P. The European Union: Superpower in the Making?
4-5 units, Win (Brückner)

POLISCI 110X. Globalization: International Challenges, Regional Responses
4-5 units, Spr (Tempel)

POLISCI 111P. The German Economy: Past and Present
4-5 units, Aut (Klein)

POLISCI 112P. A People's Union? Money, Markets, and Identity in the EU

4-5 units, Aut (Brückner)

FLORENCE

POLISCI 42P. An Extraordinary Experiment: Politics and Policies of the New European Union

5 units, Aut (Morlino)

POLISCI 43P. Democratic Quality in the Contemporary World

5 units, Spr (Morlino)

POLISCI 142P. Contemporary Italian Politics: The Berlusconi Era

5 units, Win (Morlino)

POLISCI 145P. Italy: From an Agrarian to a Postindustrial Society—
(Same as HISTORY 106V.)

4 units, Aut (Mammarella)

POLISCI 248P. Citizenship and Constitutionalism in Contemporary Europe—(Same as HISTORY 80V.)

4-5 units, Win (Rakove)

POLISCI 249P. Machiavelli—(Same as HISTORY 189V.)

4-5 units, Win (Rakove)

KYOTO

POLISCI 240P. The Political Economy of Japan

4-5 units, Spr (Hayashi)

POLISCI 247P. Immigration, Citizenship, and Identity in Japan

4-5 units, Spr (MacDougall)

OXFORD

POLISCI 141P. Modern UK and European Government and Politics

4 units, Aut (Capoccia)

POLISCI 148P. European Imperialism and the Third World, 1870-1970—(Same as HISTORY 141V.)

5 units, Spr (Darwin)

POLISCI 244P. British and American Constitutional Systems in Comparative Perspective

5 units, Spr (McMahon)

PARIS

POLISCI 143P. Human Rights in Comparative Perspective

4-5 units, Spr (Remy-Granger)

POLISCI 149P. Europe: Integration and Disintegration of States, Politics, and Civil Societies

4-5 units, Win (Lazar)

POLISCI 241P. Political Attitudes and Behavior in Contemporary France

4-5 units, Aut (Mayer, Lavabre)

SANTIAGO

POLISCI 117P. Latin America in the International System

4-5 units, Win (Fuentes)

POLISCI 242P. Modernization and its Discontents: Chilean Politics at the Turn of the Century

5 units, Spr (Correa)

POLISCI 243P. Political Transition and Democratic Consolidation: Chile in Comparative Perspective

5 units, Aut (Walker)



MORRISON INSTITUTE FOR POPULATION AND RESOURCE STUDIES

Faculty: (Director) Marcus W. Feldman (Biological Sciences); Carl Djerassi (Chemistry), William Durham (Anthropological Sciences), Paul R. Ehrlich (Biological Sciences), Lawrence H. Goulder (Economics, Institute for International Studies), Mary Lake Polan (Obstetrics and Gynecology), Shripad Tuljapurkar (Biological Sciences)

Institute Office: 371 Serra Mall (Gilbert 116)

Mail Code: 94305-5020

Phone: (650) 723-7518

Email: morrinst@stanford.edu

Web Site: <http://www.stanford.edu/group/morrinst/>

Although Stanford University does not have a degree program in population studies, it does have scholars of international reputation in specialties such as demographic history, demographic methods, economic demography, epidemiology, population biology, population genetics, and the sociology and anthropology of populations.

The Morrison Institute for Population and Resource Studies is an interdisciplinary group serving three major functions: (1) encouraging graduate work in population and resource studies through fellowship grants and supervision, (2) instituting courses and seminars in population and resource studies, and (3) bringing visiting faculty to Stanford to strengthen existing course offerings. The institute also organizes an interdisciplinary Colloquium on Population Studies to introduce upper-division undergraduates and graduate students to issues in population-related specialties.

COURSES

Many departments offer courses focusing on issues related to the study of populations and resource use. The following course is sponsored by the Morrison Institute.

BIOSCI 146. Population Studies—Series of talks by distinguished speakers introducing approaches to population and resource studies.

1 unit, Win (Feldman)

PSYCHOLOGY

Emeriti: (Professors) John H. Flavell, Albert H. Hastorf, Eleanor E. Maccoby, David L. Rosenhan, Roger N. Shepard, Carl Thoresen, Philip G. Zimbardo; *(Senior Lecturer)* Lyn K. Carlsmith
Chair: Ian H. Gotlib (Autumn), Laura L. Carstensen (Winter, Spring, Summer)

Professors: Albert Bandura, Gordon H. Bower (on leave Autumn), Laura L. Carstensen, Herbert H. Clark, Carol Dweck, John D. E. Gabrieli, Ian H. Gotlib, Leonard M. Horowitz (on leave Winter), John D. Krumboltz, Mark R. Lepper, Ellen M. Markman, Hazel R. Markus, Dale Miller, Lee D. Ross (on leave Spring), David E. Rumelhart (on leave), Claude M. Steele (on leave Autumn), Ewart A. C. Thomas, Barbara Tversky (on leave), Brian Wandell, Jeffery J. Wine, Robert B. Zajonc

Associate Professors: Anne Fernald (on leave Spring), James J. Gross
Assistant Professors: Lera Boroditsky, Jennifer L. Eberhardt, Kalanit Grill-Spector, Susan C. Johnson (on leave), Natasha Kirkham, Brian Knutson, Benoît Monin, Michael Ramscar, Jeanne L. Tsai (on leave), Anthony Wagner

Courtesy Professors: William C. Dement, Gary H. Glover, Jon Krosnick, William T. Newsome, Richard J. Shavelson

Lecturers: Joseph L. Brown, H. Jazmin Quill, Jeanne Lepper, Daniel Richardson

Other Affiliation: Albert Ahumada, Jr., Donald Norman, Andrew B. Watson

Director, Bing Nursery School: Jeanne Lepper

Department Offices: Jordan Hall, Building 420

Mail Code: 94305-2130

Department Phone: (650) 725-2400

Web Site: <http://psychology.stanford.edu/>

Courses given in Psychology have the subject code PSYCH. For a complete list of subject codes, see Appendix.

The courses and research opportunities in the Department of Psychology introduce students to the vast corpus of data on, and explanations of, human nature and human behavior. Through the study of abnormal behavior, aging, child development, cognitive processes, decision making, emotion, group behavior, infancy, language, learning and memory, personality, social perception, visual perception, and other related topics, students are introduced to the properties of sensory, cognitive, and affective systems, and of their interrelationships; to the reciprocal effects of one person on another; and to the effects on behavior of the physical, social, and cultural environment. The research programs of the faculty and students focus on the study of basic psychological mechanisms and, where appropriate, on relating basic research to the analyses and solutions of important societal problems.

The department, housed in Jordan Hall, maintains shop facilities and many computer-equipped laboratories. Bing Nursery School, located on campus at 850 Escondido Road, provides a laboratory for child observation, training in nursery school teaching, and research. It was constructed with funding from the National Science Foundation and a special grant from Mrs. Anna Bing Arnold and Dr. Peter Bing.

The department provides (1) courses designed for the general student, (2) a major program leading to the degree of Bachelor of Arts, including options for honors and a specialization in one of four content area tracks, (3) a minor program, (4) a coterminal master's degree program leading to the degree of Master of Arts, and (5) programs of graduate study and research leading to the degree of Doctor of Philosophy. Applications are not accepted for the master's degree except as noted below.

UNDERGRADUATE PROGRAMS

BACHELOR OF ARTS

Major Requirements—All students declaring a major in Psychology must complete a minimum of 55 units of course work in Psychology. All courses taken to satisfy the 55-unit requirement must be taken for a grade

of 'C-' or better (except for courses offered only on a satisfactory/no credit basis). All majors must take PSYCH 1, Introduction to Psychology, and PSYCH 10, Introduction to Statistical Methods, or a comparable Statistics course. Advanced placement (AP) credit may no longer be used toward the Psychology major requirements. Beyond these two required courses, students must complete at least five of the following ten core Psychology courses, with a minimum of two from each area A and B:

Area A Courses:

- 20. Introduction to Brain and Behavior
- 30. Introduction to Perception
- 40. Introduction to Cognitive Psychology
- 45. Introduction to Learning and Memory
- 50. Introduction to Cognitive Neuroscience (formerly Introduction to Human Neuropsychology)

Area B Courses:

- 60. Introduction to Developmental Psychology
- 70. Introduction to Social Psychology
- 75. Introduction to Cultural Psychology (formerly PSYCH 161)
- 80. Introduction to Personality Psychology
- 90. Introduction to Clinical Psychology
- 95. Introduction to Abnormal Psychology

Students who declared a major in Psychology prior to the 2002-03 academic year may choose any five of the ten core courses.

Students must take one Writing in the Major course (designated WIM) in Psychology, and should check the *Stanford Bulletin* yearly as these courses may change. The department also strongly recommends that all majors take at least one advanced seminar.

Students may count up to 10 units of independent study and practica (including but not limited to PSYCH 194, 195, 281) toward the Psychology major. Students enrolled in the senior honors program are allowed up to 15 units in independent study and practica, including PSYCH 197 and 198. Any units beyond the limit of 10 or 15 may be counted toward the 180 required for graduation.

Summer Quarter Psychology courses are not equivalent to courses given during the regular academic year and, while applicable toward the 55 units needed for the major, may not be used to fulfill the core course requirement. Additionally, a course taken during the Summer Quarter cannot be used to replace the grade of a non-Summer Quarter course, even if the title and units of the two courses are the same.

Beyond the Minimal Requirements—The following recommendations may be helpful to students who wish to plan a program which goes beyond the minimal requirements listed above:

1. Within the general major, the student may take advanced undergraduate or graduate courses, including seminars. The student may also take advantage of widespread opportunities for directed research, working closely with individual faculty and graduate students.
2. The student may apply to the Senior Honors Program, described below.
3. The student may elect to pursue one of four specialization tracks: Cognitive Sciences; Health and Development; Mind, Culture, and Society; or Neuroscience, described below.

The training obtained from the pursuit of any of these options is valuable not only for students considering graduate work in psychology, but also for those thinking of professional careers outside of psychology in fields such as business, counseling, education, law, or medicine.

MINORS

Declaration—Students who wish to declare a minor field of concentration in Psychology must do so no later than the deadline for their application to graduate.

Requirements—Completion of a minimum of seven courses in Psychology is required for the minor. In addition to PSYCH 1, Introduction to Psychology, and PSYCH 10, Introduction to Statistical Methods, or a comparable statistics course. Advanced placement (AP) credit may no longer be used towards the Psychology minor. The minor must include three of ten core courses, with a minimum of one from each of two areas

(A: 20, 30, 40, 45, 50; and B: 60, 70, 75, 80, 90, 95) and two other elective Psychology courses of at least three units each. Students who declared a Psychology minor prior to the 2002-03 academic year may choose any three of the ten core courses. Independent study and practica cannot be counted toward the minor. All courses used to fulfill the requirements of the minor must be passed with a grade of 'C-' or better.

TRANSFER CREDIT

Evaluation of transfer credit for the Psychology major or minor is a two-step process. First, Stanford credit for courses completed at other institutions must be granted by the External Credit Evaluation section of the Registrar's Office. Those units can then be applied toward the 180 required for graduation. Second, the Psychology department evaluates the courses to determine if they can be applied toward Psychology major or minor requirements. To have a course evaluated, students complete an undergraduate petition form (available from the student services office) and submit it with a course syllabus and a copy of the signed transcript from the External Credit Evaluation section showing the number of Stanford units granted for the course.

Psychology majors must complete at least 28 units of course work toward their major at Stanford. No more than 10 units of transfer credit may be counted toward the Psychology minor. Both majors and minors may use only one transfer course towards fulfilling the core course requirements. Additional courses may be used to fulfill the 55 unit requirement, but do not count as core courses.

SPECIALIZATION TRACKS

Students in the major program, including those in the Senior Honors Program, may elect to specialize in one of four tracks: Cognitive Sciences; Health and Development; Mind, Culture, and Society; or Neuroscience. Specialization tracks consist of a coherent set of courses leading to advanced undergraduate or even graduate level courses in an area. In the ideal case, the student who specializes would acquire an understanding of a range of psychological processes, as well as an appreciation of the significance of these processes in the chosen area of application. In this way, specialization could facilitate the student's preparation for a professional career in, for example, medicine, business, or counseling, as well as for graduate work in Psychology.

Specialization in a track is optional, although students who do not wish to complete all the requirements for a track may still want to use the track as a guideline for an integrated program in Psychology. Students who choose to complete a specialization track must meet the requirements for the major plus the additional requirements designated for the track. Typically the courses required for a track include one or two required courses, four to six recommended courses in Psychology, one or two advanced seminars, and three to four courses in related disciplines. Psychology courses completed for the track count toward satisfying the major requirements, but courses from other departments listed for the tracks do not unless they are designated as approved for major requirements. The Mind, Culture, and Society track includes a two quarter research practicum and students are encouraged to apply to the track by Autumn Quarter of their junior year. Application forms are available from the student services office. There is no application for the other tracks, but all tracks must be declared on Axess. Completion of a track is noted on a student's transcript, but not on the diploma. Information about the required and recommended courses for each track is available from the student services office.

HONORS PROGRAM

The senior honors program is designed for exceptionally able Psychology majors who wish to pursue a year of intensive supervised independent research. Admission to the program is made at the end of the student's junior year on the basis of (1) excellent academic performance, (2) previous research experience, and (3) recommendations by faculty and/or graduate students. An information meeting about the program is held in Winter Quarter. Applications are available late Spring Quarter from and are to be turned in to the student services office with a current transcript by June 30 prior to the student's senior year.

Students interested in the program should involve themselves in research as early as possible and should acquire a broad general background in Psychology, including statistics, and a deep background in their chosen area. The honors program is particularly appropriate for students planning to go to graduate school in Psychology or in other social sciences, as well as in computer science, business, law, and medicine.

During Autumn Quarter of their senior year, honors program students participate in a weekly seminar. Initially, discussions are on general methods and issues in psychological research, but most of the sessions are devoted to discussions of students' presentations of their proposed research. During the quarter, students meet with their advisers to develop their experimental program and begin data collection. At the end of Autumn Quarter, students turn in a written proposal. Winter and Spring quarters are devoted to completing the research, analyzing and making sense of the data, and writing the thesis, which is submitted mid-May. Students give oral presentations of their projects at the annual Honors Convention, scheduled for the day between classes and exams. This convention is attended by undergraduates, graduate students, and faculty.

GRADUATE PROGRAMS

MASTER OF ARTS

The Department of Psychology normally offers a Master of Arts degree only to students concurrently enrolled in its Ph.D. program or to students currently pursuing Stanford B.A. or M.A. degrees. Application to the program is by Psychology faculty nomination only. All applicants must satisfy University residency requirements for the degree and are responsible for consulting with their primary departments or the Financial Aid Office about the effects of the proposed program on their current funding. General University requirements for the master's degree are described in the "Graduate Degrees" section of this bulletin.

Stanford undergraduate students who would like advanced training in Psychology may apply for a coterminal M.A. degree in Psychology. To do so, students should consult with the student services officer in the department. Along with a coterminal program application, applicants must submit (1) a statement of purpose, (2) a preliminary program plan specifying the courses in which they intend to enroll to fulfill degree requirements, (3) at least two letters of recommendation from Stanford faculty members familiar with their academic work, (4) a current Stanford undergraduate transcript, and (5) a written nomination by a member of the Psychology faculty willing to serve as the student's master's degree adviser. This program is limited in size and admission is selective. Applicants must have earned a minimum of 120 units towards graduation as shown on the undergraduate transcript. The department's deadline for the submission of an application to the coterminal program is January 10.

For University coterminal degree program rules and University application forms, see <http://registrar.stanford.edu/publications/#Coterm>.

In exceptional cases, students concurrently enrolled in another doctoral or professional program at Stanford may also apply for the M.A. degree. Such applicants also consult with the department's student services officer.

Students must complete at least 45 units of Psychology courses for the degree. (For coterminal degree students, course work for the master's degree may not duplicate courses taken for the undergraduate degree.) Of these 45 units, at least 27 must be in Psychology courses numbered 200 or above. Units from research, teaching, independent study, and lab courses, such as PSYCH 222, 258, 269, 275, 281, 282, and 297, may not be counted toward these 27 units. Two of the graduate courses of at least 3 units each (one from Area A and one from Area B below) are required. In addition, at least one upper division statistics course is required. The course must be approved by the student's adviser. It is recommended that all coterminal students enroll in PSYCH 196, Contemporary Psychology.

All courses to be counted toward the master's degree must be passed with a grade of 'B-' or better (unless the course is offered only on a satisfactory/no credit basis). Units from research, teaching, independent study, and lab courses, such as PSYCH 222, 258, 269, 275, 281, 282, and 297, may be counted toward the remaining required 18 units. Psychology

courses numbered in the 100-level and courses from other Stanford departments may be used to satisfy the remaining 18 units. Courses specifically for undergraduates (i.e., undergraduate honors courses) may not be counted toward the master's program unit requirements. Demonstration of competence in the design and execution of psychological research is also required for receipt of the master's degree. This demonstration entails completion of a master's thesis. If the student is currently doing a senior honors thesis, this honors thesis may be accepted as proof of research competence provided the honors thesis is judged to be master's level research by the student's adviser and the department's Committee on Graduate Studies. If the student has just completed an honors thesis in Psychology in the prior year, the student would be expected to continue independent research during the coterminal year and to submit thesis research in a written report which, together with the completed honors thesis, would constitute the master's thesis. All students are required to make an oral presentation of their research during the Spring Quarter, and to present their thesis or written report by June 1.

Area A Courses:

- 202. Cognitive Neuroscience
- 205. Foundations of Cognition
- 210. Memory and Learning
- 214. Psycholinguistics
- 221. Applied Vision and Image Systems
- 228. Ion Transport
- 251. Affective Neuroscience
- 261. Learning and Cognition in Activity
- 277. Seminar on Emotion

Area B Courses:

- 211. Developmental Psychology
- 212. Social Psychology
- 213. Personality and Psychopathology
- 215. Mind, Culture, and Society
- 216. Personality Disorders
- 217. Topics and Methods in Cultural Psychology
- 259. Emotions: History, Theories, Research
- 271. Applications of Social Psychology

DOCTOR OF PHILOSOPHY

There are no specific course requirements for admission to the doctoral program. However, an applicant should have research experience as an undergraduate, as well as the equivalent of an undergraduate major in psychology. The major focus of the doctoral program is on research training, and admission is highly selective.

Applicants for admission must submit their scores on the Graduate Record Examination (both general and psychology subject tests) as part of the application. This examination may be taken at most universities and colleges.

General University requirements for the Ph.D. are described in the "Graduate Degrees" section of this bulletin.

In addition to fulfilling Stanford University requirements for the degree, the following departmental requirements are stipulated.

First-Year Course Requirements—During the first year of graduate study, the student must take 207, Proseminar for First-Year Ph.D. Graduate Students, at least one approved graduate statistics course, and at least two core courses from the list below:

- 202. Neuroscience
- 205. Foundations of Cognition
- 211. Developmental Psychology
- 212. Social Psychology
- or 215. Mind, Culture, and Society
- 213. Personality

Students in each area may be required to take up to two additional non-core graduate courses in their area of specialization.

The student is expected to spend at least half of the time in research from the beginning of the first year of graduate study to the completion of the Ph.D., normally taking no more than 10 units of course work each quarter. At the end of the first year of graduate study, the student must

file with the department a written report of the first-year research activities. The deadline for filing this report is June 1.

Second-Year Course Requirements—By the end of the second year of graduate study, the student must complete the core courses listed above and take a second approved graduate course in statistics.

Third-Year Major Area Paper—During the first week of Autumn Quarter of the fourth year, the student must turn in a Conceptual Analysis of the Dissertation Area (CADA). This paper provides a general framework for the research topic of the dissertation, addresses the central issues within the specialty area, and reviews the pertinent literature. Typically, the analysis has the kind of scope found in the opening chapters of the more traditional dissertations, but the exact format and scope of the paper is a joint decision made by student and adviser.

Prior to Autumn Quarter, the student should select two faculty members to read this paper and give feedback and commentary on it. These should be two faculty members most likely to serve later on the orals committee of the dissertation. A portion of the paper, revised as appropriate, can then become the first section of the actual dissertation proposal.

If the student should radically change the area of the dissertation research after the CADA has been written, the formal CADA procedure does not need to be repeated for the second dissertation topic. The student is still expected, however, to be knowledgeable about the literature and problems of any research topics being pursued for the dissertation.

Minor Requirements—The candidate must complete either a University minor satisfactory to the minor department, or elect to have the minor waived by selecting 12 upper-level units. These 12 units may be fulfilled by either (a) non-core graduate courses in Psychology, excluding any non-core graduate courses required by a particular area, or (b) graduate-level courses in other departments comparable in quality to Psychology's graduate courses. If there is any question about comparability, students should consult the Graduate Education Committee before taking the course.

Dissertation Reading Committee—The candidate must select a dissertation reading committee satisfactory to the department. The minimum membership of this committee must be (1) the principal dissertation adviser, (2) a second member from within the department, and (3) a third member chosen from Psychology or another department.

Orals—The candidate must pass the University oral examination, which is based on the dissertation proposal, not on the completed dissertation. The reason for this policy is to permit the oral examination to serve the function of guiding and improving the proposed research. This function can best be served if the oral examination is scheduled early in the year in which the dissertation research is conducted. It is therefore expected that the oral examination be taken by the end of the Autumn Quarter of the fourth year.

Dissertation Requirements—The candidate must complete a dissertation satisfactory to the dissertation reading committee.

Ph.D. candidacy expires five years after admission to candidacy at the end of the second year of study. Reapplication requires department re-examination.

STUDENT EVALUATIONS

First-Year Evaluation—It is the department's policy to evaluate the progress of each graduate student at the end of the first year of graduate study. As part of the procedure, each student is required to file with the department a report of the first-year research activities.

Students should discuss this report and the evaluation procedures with their adviser as early as possible in their first year. The report is due on June 1. If the student fulfills the academic promise displayed upon entrance, he or she is invited to continue to the doctorate.

The first-year evaluation is primarily based on three factors:

1. quality of research carried out in the first year
2. performance in courses (especially required courses)
3. recommendations of the adviser (including a commitment on the part of that adviser to continue in that role)

Second-Year Evaluation—A similar evaluation is conducted at the end of the second year of graduate training involving the same criteria

as the first year; however, the student is not required to submit a paper. Students who do not make satisfactory progress during the second year may be dropped from the program.

THE DOCTORAL TRAINING PROGRAM

As indicated by the requirements described above, a student may concentrate in any one of several areas within psychology. Regardless of area, however, the training program places emphasis on the development of research competence, and students are encouraged to develop those skills and attitudes that are appropriate to a career of continuing research productivity.

Two kinds of experience are necessary for this purpose. One is the learning of substantial amounts of technical information. A number of courses and seminars are provided to assist in this learning, and a student is expected to work out a program, with his or her adviser, to attain this knowledge in the most stimulating and economical fashion.

A second aspect of training is one that cannot be gained from the courses or seminars. This is firsthand knowledge of, and practical experience with, the methods of psychological investigation and study. These methods include ways of behaving with the people or animals being studied. Students are provided with whatever opportunities they need to reach those levels of competence representative of doctoral standing. Continuing research programs, sponsored by members of the faculty, offer direct opportunities for experience in fields represented by the faculty's many research interests.

Each student achieves competence in unique ways and at different rates. Each student and adviser share in planning a program leading to the objectives discussed. The student is expected to spend half of his or her time on research and normally takes no more than 10 units of course work per quarter.

TEACHING REQUIREMENT

The department views experience in supervised teaching as an integral part of its graduate program. Regardless of the source of financial support, all students serve as teaching assistants for five Psychology courses during their graduate study. Of the courses, two should be PSYCH 1, Introduction to Psychology, and/or PSYCH 10, Statistical Methods. Students are discouraged from participating in teaching during the first year of graduate study. Students typically progress from closely supervised teaching to more independent work. Some students may be invited to offer a supervised, but essentially independent, seminar during their final year of graduate study.

PH.D. MINOR

Candidates for the Ph.D. degree in other departments may elect a minor in Psychology. To obtain a minor, the student must complete 20 units of course work at the graduate level in the Department of Psychology, excluding PSYCH 275 (graduate-level research). Crosslisted graduate courses can be used to satisfy this requirement. All courses counting toward the Ph.D. minor must be passed with a grade of 'B-' or better (unless the course is offered only on a satisfactory/no credit basis).

COGNITIVE SCIENCE PROGRAM

Psychology participates, along with the departments of Computer Science, Linguistics, and Philosophy, and the School of Education, in an interdisciplinary program of cognitive science. The program is intended to provide students with an interdisciplinary education as well as a deeper concentration in psychology. Doctoral students in Psychology are eligible to participate in the cognitive science program. Students who complete the requirements receive a special designation in cognitive science along with the Ph.D. in Psychology. To receive this field designation, students must complete 30 units of approved courses, 18 of which must be taken in two disciplines outside of psychology. For information or course approval, see the student services officer.

PSYCHOLOGY COLLOQUIUM

The Psychology Colloquium meets on most Wednesday afternoons at 3:45. Speakers from Stanford and other institutions present topics of current interest. Graduate students are expected to attend.

COURSES

WIM indicates that the course satisfies the Writing in the Major requirement.

SUMMER SESSION

The courses announced for the Summer Session are those regularly scheduled in the department curriculum. Additional courses may be announced by Stanford Summer Session on their web site at <http://summer.stanford.edu/>.

STANFORD INTRODUCTORY SEMINARS

PSYCH 2N. Aging and Time Perspective—Stanford Introductory Seminar. Preference to freshmen. Human beings are unique in their ability to monitor time and appreciate their place in the life cycle. Because goals are set within temporal contexts, different types of goals are pursued at different times in life. Review of literature on adult development and motivation, specifically considering how perceived time influences life course trajectories. GER:3b

3 units, Win (Carstensen)

PSYCH 7Q. Language Acquisition—Stanford Introductory Seminar. Preference to sophomores. Debates concerning how biology guides linguistic development; theories about the nature and origins of human language abilities; and experimental research on the emergence of understanding in infancy.

3 units, Aut (A. Fernald)

PSYCH 8N. Life Span Development—Stanford Introductory Seminar. People continue to change in systematic ways throughout life, but developmental psychology has focused mostly on childhood. Focus is on conceptual models that direct developmental research on adulthood and old age, and the empirical literature concerning developmental changes in cognition, motivation, and emotion. GER:3b

3 units, Spr (Carstensen)

PSYCH 9N. The Social Psychology of Race, Gender, and Culture—Stanford Introductory Seminar. Preference to freshmen. Focus is on the role that one's social context, or one's position in society and social identity, plays in shaping the psychology of the individual and the collective psychology of society more generally. GER:3b

3 units, Spr (Steele)

PSYCH 11N. The Origin of Medical Life—Stanford Introductory Seminar. Preference to freshmen. Fundamental questions about the nature of human cognition require discovering how thinking originates and the nature of thinking in infancy. Recent advances in psychological theory that permit answers to once intractable questions. Methods, hypotheses, and evidence about how the human mind develops. Students observe ongoing research in cognitive development. GER:3b

3 units, Win (Markman)

PSYCH 12Q. Emotion—Stanford Introductory Seminar. Preference to sophomores. What is emotion? Why do people have emotions? Can people change their emotions? How do people's emotions differ? Can emotions make people sick? Focus is on experimentally tractable questions, and empirical research findings relevant to these questions, emphasizing critical thinking and writing skills. Limited enrollment.

2 units, Aut (Gross)

OPEN TO ALL STUDENTS

Additional courses not listed here are frequently offered by selected postdoctoral or terminal Ph.D. personnel in the areas of their special research. These are listed in the quarterly *Time Schedule*; the course descriptions are circulated in advance.

PSYCH 1. Introduction to Psychology—Human behavior and mental processes including the nervous system, consciousness, learning, memory, development, emotion, psychopathology, interpersonal process, society, culture, and current research. GER:3b

5 units, Aut (Quill, Gross), Win (Quill, Kirkham), Spr (Quill, Monin)

PSYCH 10. Introduction to Statistical Methods: Precalculus—(Same as STATS 60/160.) Techniques for organizing data, computing, and interpreting measures of central tendency, variability, and association. Estimation, confidence intervals, tests of hypotheses, t-tests, correlation, and regression. Possible topics: analysis of variance and chi-square tests, computer statistical packages. GER:2c

5 units, Aut (Walther), Win (Thomas), Spr, Sum (Staff)

PSYCH 20. Introduction to Brain and Behavior—(Enroll in BIOSCI20.)

3 units, Aut (R. Fernald) alternate years, not given 2005-06

PSYCH 30. Introduction to Perception—Perceptual psychology and sensory neuroscience, emphasizing vision and hearing. Topics include anatomy and physiology of the eye and ear, and of the visual and auditory areas of the brain, pitch and loudness perception, speech perception, color vision, depth and motion perception, and object and face recognition. Recommended: 1. GER:2a

3 units, Win (Grill-Spector)

PSYCH 40. Introduction to Cognitive Psychology—Survey and analysis of major topics in cognitive psychology, including perception, memory, problem solving, and reasoning. Emphasis is on contemporary research and theory. Recommended: 1 and 10. GER:2a

4 units, Win (Davies)

PSYCH 45. Introduction to Learning and Memory—Survey of the literature on learning and memory including cognitive and neural organization of memory, mechanisms of remembering and forgetting, and why people sometimes falsely remember events that never happened. Cognitive theory and behavioral evidence integrated with data from patient studies and functional brain imaging. Recommended: 1.

3 units, Spr (Wagner)

PSYCH 50. Introduction to Cognitive Neuroscience—(Formerly Introduction to Human Neuropsychology.) Topics in human neuropsychology. Review of the functional organization of the human nervous system and of brain imaging techniques (MRI, PET). Hemispheric specialization and the brain basis of perception, memory, language, emotion, spatial cognition, and problem solving. Neuropsychological deficits in neurological disorders and their implications in understanding normal function. Recommended: 1. GER:2a,WIM

4 units, Win (Gabrieli)

PSYCH 60. Introduction to Developmental Psychology—Psychological development from birth to adulthood, emphasizing infancy and the early and middle childhood years. The nature of change during childhood and theories of development. Recommended: 1. GER:3b,WIM

3 units, Win (Flavell)

PSYCH 60A. Introduction to Developmental Psychology Section—Guided observation of children age 2-6 at Bing Nursery School. Corequisite: 60.

2 units, Win (Winters, Hartman)

PSYCH 70. Introduction to Social Psychology—A survey of theory and empirical research in social psychology: conformity, obedience, helping, and aggression; attitudes, persuasion, identity and roles; person perception, attribution, and social judgment; interpersonal and intergroup relationships, social conflict, prejudice, and stereotyping. Original research proposal. Recommended: 1. GER:3b,WIM

4 units, Spr (J. Brown)

PSYCH 75. Introduction to Cultural Psychology—The cultural sources of diversity in thinking, emotion, motivation, self, personality, morality, development, and psychopathology. Recommended: 1. WIM

5 units, Spr (Markus) alternate years, not given 2005-06

PSYCH 80. Introduction to Personality Psychology—Concepts and research methods, major theoretical approaches, and related empirical findings. The psychodynamic, trait, biological, humanistic, behavioral, social learning, cognitive, and cultural perspectives. Recommended: 1. GER:3b

3 units, Win (Knutson)

PSYCH 90. Introduction to Clinical Psychology—Topics include the history of clinical psychology, models and assessment of personality, behavior, cognition, psychopathology, and approaches to the treatment of abnormal behavior. Emphasis is on current theory, research, issues in, and the role of clinical psychology in contemporary society. Recommended: 1. GER:3b

3 units, Aut (Gotlib)

PSYCH 110. Research Methods and Experimental Design—Structured research exercises and design of an individual research project. Prerequisite: consent of instructor. WIM

5 units, Spr (M. Lepper)

PSYCH 120. Cellular Neuroscience: Cell Signaling and Behavior—Neural interactions underlying behavior. Prerequisites: 1 or basic biology. GER:2a

4 units (Wine) not given 2004-05

PSYCH 121. Ion Transport and Intracellular Messengers—(Graduate students register for 228.) Ion channels, carriers, ion pumps, and their regulation by intracellular messengers in a variety of cell types. Lab demonstrations and hands-on introduction to techniques such as patch clamping. Recommended: 120 or introductory course in biology or human biology.

3 units, Spr (Wine)

PSYCH 122. Human Behavioral Biology—(Enroll in BIOSCI 150/250.)

3-6 units (Sapolsky) alternate years, given 2005-06

PSYCH 129. Reading, Science, Education, and Politics—Controversies concerning how children are taught to read emphasizing those with reading disabilities; the reading wars. The intellectual foundation of reading curriculum development. How scientists, educators, and policy makers can work together to produce an effective curriculum. Neurological properties of students who have extraordinary difficulty in learning to read, and what might be done to assist them.

3 units, Spr (Wandell, Dougherty)

PSYCH 130. Introduction to Cognitive Science—(Same as LINGUIST 144, SYMSYS 100, PHIL 190.) The history, foundations, and accomplishments of the cognitive sciences, including presentations by leading Stanford researchers in artificial intelligence, linguistics, philosophy, and psychology. Overview of the issues addressed in the Symbolic Systems major. GER:3b

4 units, Spr (Jurafsky, Richardson)

PSYCH 131. Language and Thought—The psychology of language, including production and understanding in utterances; from speech sounds to speaker's meaning; children's acquisition of the first language; and the psychological basis for language systems. Language functions in natural contexts and their relation to the processes by which language is produced, understood, and acquired. Prerequisite: 1 or LINGUIST 1. GER:3b

4 units, Aut (H. Clark)

PSYCH 133. Human Abilities—(Same as EDUC 255.) Psychological theory and research on human cognitive abilities; their nature, development, and measurement; and their importance in society. Persistent controversies and new areas of research, recent perspectives on the nature-nurture debate and the roles of genetics, health and education in shaping HCAs. Prerequisite: PSYCH 1 or equivalent. (PSE) GER:3b

3 units, Win (Shavelson)

PSYCH 134. Seminar on Language and Deception—Deceptive, exploitative, and other noncooperative uses of language. How is language used to deceive or exploit? Where are these techniques practiced and why? What are the personal, ethical, and social consequences of these practices? Prerequisite: 131, LINGUIST 1, or PHIL 181. GER:3b

3 units, Win (H. Clark)

PSYCH 137. Birds to Words: Cognition, Communication, and Language—Although the communicative abilities of all animals are determined by their genetic endowment, and human communicative

skills dwarf those of other species, the relation between language and genetics remains the subject of debate. Is human language genetically specified? Or are human communicative powers just one facet of human cognitive advantage? Focus is on the nature and origins of language, using evidence from studies of animals, children, and adults. GER:3b
3 units, Win (A. Fernald, Ramscar)

PSYCH 140. Research Methods in Developmental Psychology—Conceptual and methodological issues related to research on early development, training in experimental design, lab, and observational procedures, and the collection, analysis, and interpretation of data. Students conduct supervised experiments with infants and preschoolers at the Center for Infant Studies in the Department of Psychology and at Bing Nursery School. Limited enrollment. Lab required. GER:3b
5 units (Markman, Johnson) not given 2004-05

PSYCH 141. Cognitive Development—Topics and issues on cognitive development, developmental changes in memory, conceptual organization, logical reasoning, and communication skills. Prerequisite: 1. GER:3b
3 units, Aut (Markman)

PSYCH 143. Developmental Anomalies—(Graduate students register for 239.) Neurodevelopmental disorders and impairments. What can the sparing of isolated mental abilities in otherwise devastating disorders (or vice versa) tell about the mind and its development in the normal case? Disorders and impairments: autism, congenital blindness, deafness, dyslexia, and Williams syndrome. Prerequisites: 60, 141 or LINGUIST 1. GER:3b
3 units (Johnson) not given 2004-05

PSYCH 145. Seminar on Infant Development—For students interested in research skills. Focus is on conceptual and methodological issues related to research on early development; training in experimental design, lab, and observational procedures; and the collection, analysis, and interpretation of data. Limited enrollment.
1-2 units, Aut (A. Fernald)

PSYCH 146. Observation of Children—Learning about children through guided observations at Bing Nursery School, Psychology's lab for research and training in child development. Physical, emotional, social, cognitive, and language development. Recommended: 60. GER:3b
3-5 units, Aut, Spr (Winters, Hartman)

PSYCH 147. Development in Early Childhood—Supervised experience with young children at Bing Nursery School. 3 units require 4 hours per week in Bing classrooms throughout the quarter; 4 units require 7 hours per week; 5 units require 10.5 hours per week. Weekly seminar on developmental issues in the teaching-learning environment at Bing School. Prerequisite: 60 or 146, or consent of instructor.
3-5 units, Aut, Win, Spr (J. Lepper)

PSYCH 149. The Infant Mind: Cognitive Development over the First Year—How do babies learn so much in so little time? Emphasis is on cognitive and perceptual development, and the relationship between brain and behavior in infancy. Prerequisite: 1. Recommended: 60 or 141. GER:3b
3 units, Spr (Kirkham)

PSYCH 152. Mediation for Dispute Resolution—(Same as EDUC 131X.) Mediation is more effective and less expensive than other forms of settling disputes such as violence, lawsuits, or arbitration. How mediation can be structured to maximize the chances for success. Simulated mediation sessions.
3 units, Aut (Krumboltz)

PSYCH 155. Introduction to Comparative Studies in Race and Ethnicity—(Same as CSRE 196C, ENGLISH 172D.) How different disciplines approach topics and issues central to the study of ethnic and race relations in the U.S. and elsewhere. Lectures by senior faculty affiliated with CSRE. Discussions led by CSRE teaching fellows. GER:3b
5 units (Markus, Moya) alternate years, given 2005-06

PSYCH 156. Applications of Social Psychology—(Graduate students register for 271.) The application of social psychological theory and research to evaluating the impact of social interventions, strategies, and shortcomings in personal and social decision making; the effects of mass media and other sources of social persuasion; conflict resolution and negotiation; applications in legal, medical, educational, and business settings. Prerequisites: 1 and 10, or consent of instructor.
1-4 units (Ross) not given 2004-05

PSYCH 158. Emotions: History, Theories, and Research—(Graduate students register for 259.) Theoretical and empirical issues in the domain of emotions. The history of emotion theories, current approaches, and the interaction between emotion and cognition.
3 units, Aut (Zajonc)

PSYCH 161. Emotion—(Graduate students register for 261.) Overview of the scientific study of emotion. Topics: models of emotion, emotion antecedents, emotional responses (facial, subjective, and physiological), functions of emotion, emotion regulation, individual differences, and health implications. Focus is on experimentally tractable ideas. GER:3b
3 units, Aut (Gross)

PSYCH 162. The Psychology of Gender—Research and theory on the socialization and psychological development of women and men. The biological, cultural, and social factors that influence gendered behavior. GER:4c
4 units, Win (Carstensen)

PSYCH 163. Interpersonal Basis of Abnormal Behavior—The role of interpersonal problems and processes in producing forms of psychopathology including neurotic reactions and schizophrenia. Conventional empirical methods clarify the origin, nature, and treatment of emotional and personality disorders. GER:3b
3 units (Horowitz) not given 2004-05

PSYCH 165. Peace Studies—(Same as POLISCI 111.) Interdisciplinary. The challenges of pursuing peace in a world where the sources of conflict are many, and regional, ethnic, and religious antagonisms are rising. The art of creating and maintaining peace from historical, social, psychological, and moral perspectives. Goal is to illustrate the contributions of academic disciplines and critical analyses to the study of peace, and to prepare students to think critically and to act responsibly and effectively on behalf of peace. Students explore a conflict and offer contributions to the building of peace. Limited enrollment. GER:3b
5 units, Spr (Bland, Ross, Holloway)

PSYCH 166. Seminar on Personal and Social Change—Social cognitive approaches to personal and social change. Applications of socio-cognitive theory to the modification of psychological dysfunctions in familial, educational, medical, and organizational settings. Ethical and value issues in behavior change.
3 units, Spr (Bandura)

PSYCH 167. Seminar on Aggression—The causes and modification of individual and collective aggression. Major issues in aggression: social labeling of injurious conduct, social determinants of aggression, effects of the mass media, institutionally sanctioned violence, terrorism, psychological mechanisms of moral disengagement, modification of aggressive styles of behavior, and legal sanctions and deterrence doctrines.
3 units, Win (Bandura)

PSYCH 168. Emotion Regulation—(Graduate students register for 268.) GER:3b
3 units, Win (Gross)

PSYCH 171. Research Seminar on Aging—Two quarter practicum exposes students to multiple phases of research by participating in a laboratory focusing on social behavior in adulthood and old age. Review of current research; participation in ongoing data collection, analysis, and interpretation. Prerequisites: 1, research experience, and consent of instructor.
4 units, Aut, Win, Spr (Carstensen)

PSYCH 173. Mind, Culture, and Society Research Lab—For juniors in the Mind, Culture, and Society track. Offered over two quarters. Lecture series on current research topics. Research project in second quarter.

2-3 units, Win, Spr (Markus)

PSYCH 176. Carl Jung and Analytical Psychology—Introduction to the person of Jung, his seminal philosophical perspectives, and their impact on modern thought and life. The formation of analytical psychology with regards to Jung's past relationship with Freud and later emergence as a prominent 20th-century thinker. Emphasis is on the archetypal themes of the shadow, *anima/animus* (feminine/masculine), and *puer/senex* (youth/elder). The function of dreams and the interplay between the Jungian paradigm and spirituality. GER:3b

4 units, Aut (Daher)

PSYCH 177. Senior Seminar on Mind, Culture, and Society—For seniors in the Mind, Culture, and Society track.

3 units, Aut (Markus)

PSYCH 178. Stigma and Marginality—(Graduate students register for 263.) The perceptions and strategies of the targets of prejudice and discrimination, with emphasis on race and ethnicity. Topics: social perceptions and the judgments of targets, racial identity, behavioral consequences of prejudice and discrimination, and legal/policy implications. Readings from social psychology, African American studies, sociology, and law. Limited enrollment. GER:3b

3 units (Eberhardt) not given 2004-05

PSYCH 180. Social Psychological Perspectives on Stereotyping and Prejudice—(Graduate students register for 245; see 245.)

3 units (Eberhardt) not given 2004-05

PSYCH 185. Contemporary Issues in Peace Studies—(Graduate students register for 285.) Interdisciplinary. The challenges of pursuing peace in a world of conflict and regional, ethnic, and religious antagonisms. Historical, social, psychological, and moral perspectives. Current research in social psychology, political science, international relations, and negotiation theory. Student involvement in real-world efforts to identify and overcome the barriers that impede a peace settlement. Prerequisite: consent of instructor. GER:3b

3 units, Spr (Bland, Ross, Holloway)

PSYCH 187. Exploring Human Nature: A Life-Changing Experience—Experiential projects concerning: ethics; social influence, mind control, and cults; evil and terrorism; time perspective and hypnosis; and shyness, liking, loving, and human sexuality. Students examine and alter some basic aspect of their lives. Expert speakers. Prerequisite: 1.

4 units, Win (Zimbardo)

PSYCH 192. Career and Personal Counseling—(Same as EDUC 134/234.) Methods of integrating career and personal counseling with clients and counselors from differing backgrounds. Practice with assessment instruments. Case studies of bicultural role conflict. Informal experience in counseling. (PSE)

3 units, Spr (Krumboltz)

PSYCH 194. Reading and Special Work—Independent study. May be repeated for credit. Prerequisite: consent of instructor.

1-3 units, Aut, Win, Spr, Sum (Staff)

PSYCH 195. Special Laboratory Projects—Independent study. May be repeated for credit. Prerequisites: 1, 10, and consent of instructor.

1-6 units, Aut, Win, Spr, Sum (Staff)

PSYCH 196. Contemporary Psychology: Overview of Theory, Research, Applications—A capstone experience for juniors and seniors that bridges previous course work with future research opportunities. Lectures representing each of the department's areas: social, personality, developmental, neuroscience, and cognitive psychology. Each Tuesday, a different faculty member presents his or her current psychological research and engages with students on issues related to that field of study. Thursday discussions led by advanced graduate students working in the

field represented by that week's guest. Students are guided by the instructors to write their own research proposal. Small grants available to students interested in conducting a pilot study of their proposed research. Limited enrollment. GER:3b

3 units, Aut (Thomas)

PSYCH 197. Advanced Research—Limited to students in senior honors program. Weekly research seminar, independent research project under the supervision of an appropriate faculty member. A detailed proposal is submitted at the end of Autumn Quarter. Research continues during Winter and Spring quarters as 198. A report demonstrating sufficient progress is required at the end of Winter Quarter.

1-4 units, Aut (Eberhardt)

PSYCH 198. Senior Honors Research—Limited to students in the senior honors program. Work includes finishing the research and data analysis, written thesis, and presentation at the Senior Honors Convention.

1-4 units, Win, Spr (Eberhardt)

PRIMARYLY FOR GRADUATE STUDENTS

Undergraduates admitted only by consent of instructor.

PSYCH 202. Cognitive Neuroscience—Graduate core course in cognitive neuroscience. The anatomy and physiology of the brain. Methods: electrical stimulation of the brain, neuroimaging, neuropsychology, psychophysics, single-cell neurophysiology, theory and computation. Neuronal pathways and mechanisms of: attention, consciousness, emotion, language, memory, motor control, and vision. Prerequisite: 207 or consent of instructor.

3 units, Spr (Gabrieli, Wandell, Grill-Spector, Wine)

PSYCH 204A. Computational Neuroimaging—(Same as NBIO 204.) Advanced seminar. For students working with functional magnetic resonance imaging (fMRI). Review of current understanding of the physiological basis of the signal measured using fMRI. Possibilities for experiment design and interpretation of the signal with respect to other physiological and behavioral measurements. Emphasis is on experimental design, software tools, and pulse sequences for fMRI experiments.

1-3 units, Aut (Wandell) alternate years, not given 2005-06

PSYCH 204B. Computational Neuroimaging: Analysis Methods—Data analysis techniques to analyze neuroimaging data using real and simulated data sets. Rethinking basic assumptions. Topics include: linearity of the fMRI signal; time versus space resolution tradeoffs; and correlation analysis. Reverse engineering: can cognitive states be predicted from brain activation?

1-3 units (Wandell, Grill-Spector) alternate years, given 2005-06

PSYCH 205. Foundations of Cognition—Topics: attention, memory, language, similarity and analogy, categories and concepts, learning, reasoning, and decision making. Emphasis is on processes that underlie the capacity to think and how these are implemented in the brain and modeled computationally. The nature of mental representations, language and thought, modular versus general purpose design, learning versus nativism. Prerequisite: 207 or consent of instructor.

1-3 units, Aut (Ramscar)

PSYCH 207. Professional Seminar for First-Year Ph.D. Graduate Students—Required of and limited to first-year Ph.D. students in Psychology. Survey of major issues in contemporary psychology with their historical backgrounds.

2-3 units, Aut (Carstensen, Boroditsky, Dweck)

PSYCH 210. Foundations of Memory—Memory and human cognition. Behavioral and neural data indicate that memory is not a unitary faculty but consists of multiple systems that support learning and remembering, each with its own processing characteristics and neurobiological substrates. What is known about memory emphasizing the cognitive and neural architectures of working, declarative, and non-declarative memory.

3 units, Aut (Wagner)

PSYCH 211. Developmental Psychology—Prerequisite: 207 or consent of instructor.

1-3 units, Win (Markman, A. Fernald, Kirkham)

PSYCH 212. Social Psychology—Prerequisite: 207 or consent of instructor.

1-3 units, Aut (M. Lepper, Ross)

PSYCH 213. Personality and Psychopathology—Survey of theory and research in personality and psychopathology. Prerequisite: 207 or consent of instructor.

1-3 units, Spr (Horowitz)

PSYCH 214. Psycholinguistics—Prerequisite: graduate standing in Psychology or consent of instructor.

1-3 units (H. Clark) not given 2004-05

PSYCH 215. Mind, Culture, and Society—Social psychology from the context of society and culture. The interdependence of psychological and sociocultural processes: how sociocultural factors shape psychological processes, and how psychological systems shape sociocultural systems. Theoretical developments to understand social issues, problems, and polity. Works of Baldwin, Mead, Asch, Lewin, Burner, and contemporary theory and empirical work on the interdependence of psychology and social context as constituted by gender, ethnicity, race, religion, and region of the country and the world. Prerequisite: 207 or consent of instructor.

3 units, Win (Markus, Steele)

PSYCH 217. Topics and Methods in Cultural Psychology—Discussion and critical examination of conceptual and methodological issues in cultural psychology. Possible topics: the mechanisms by which culture influences psychological and social processes in monocultural and multicultural contexts; the relations between culture and biology; the measurement of culture; the development of culturally appropriate instruments and tasks; and the use of various questionnaire, interview, observational, and physiological methods to study cultural influences on human behavior.

3 units (Tsai) not given 2004-05

PSYCH 219. Topics in Cognition—Prerequisite: consent of instructor.

1-3 units (Tversky) not given 2004-05

PSYCH 220. Topics in Cognitive Development—Prerequisite: graduate standing in Psychology or consent of instructor.

1-3 units, Spr (Markman)

PSYCH 221. Applied Vision and Image Systems—The design and control of color imaging devices (display, printers, cameras, and scanners). Aspects of human vision relevant to software and hardware design. Topics: digital halftoning, color calibration, color metrics, flicker sensitivity, motion compensation, human spatial resolution, visual masking, JPEG principles, printer design, scanner design, and color software architecture. Lab.

1-3 units (Wandell) not given 2004-05

PSYCH 222. Graduate Seminar in Cognitive Neuroscience—For students who are already or planning to become involved in research. Critical reviews of theory and ongoing research in human cognitive neuroscience. Prerequisite: consent of instructor.

1-2 units, Aut, Win, Spr (Gabrieli)

PSYCH 223. Social Norms—(Same as OB 630.) Research and theory on the origins and function of social norms. Topics include the estimation of public opinion, the function of norms as ideals and standards of judgment, and the impact of norms on collective and individual. How to identify and formulate tractable research questions.

4 units (Miller) not given 2004-05

PSYCH 224. Questionnaire Design for Surveys and Laboratory Experiments: Social and Cognitive Perspectives—(Enroll in COMM239.)

4 units, Spr (Krosnick)

PSYCH 225. Theories of Thought—Mechanisms and patterns underlying human thought and the prospects for thinking machines. Topics: use of concepts and symbols; detection of patterns and inferences regarding causal relationships; learning and memory; reason and creativity; consciousness; emotion and decision making; neural network theory; and artificial intelligence. Perspectives include psychology, evolutionary theory, cognitive science, neurobiology, philosophy, and computer science.

3 units, Win (Wandell, Pabo)

PSYCH 227. Seminar in Psycholinguistics: Psycholinguistics of Conversational Speech—(Same as LINGUIST 247.) Psychological processes for spontaneous, conversational speech. Current theories and issues in production and comprehension. Possible topics include turn-taking, prosody in spontaneous speech, lexical choice, accommodation, collaboration, disfluencies, orientation, grammar, and methodological issues in conversational corpus investigation.

2-4 units, Spr (Jurafsky, H. Clark)

PSYCH 228. Ion Transport and Intracellular Messengers—(Undergraduates register for 121; see 121.)

1-3 units, Spr (Wine)

PSYCH 231. Graduate Seminar on Self-Efficacy—The origins, mediating mechanisms, and diverse effects of people's beliefs in their efficacy to exercise control over events in their lives. Alternative theories of perceived control; the nature and structure of self-efficacy belief systems; major sources of efficacy beliefs; the processes through which they affect human functioning; developmental analysis of efficacy beliefs over life course; the application of self-efficacy theory to cognitive development, health functioning, clinical dysfunctions, organizational functioning, and athletic performance; the exercise of collective efficacy to accomplish social change.

1-3 units (Bandura) alternate years, given 2005-06

PSYCH 234. Topics in Affective Disorders—Current research topics in the study of affective disorders. Topics: epidemiology and phenomenology of affective disorders, psychological theories of depression, gender differences in affective disorders, cognitive and social functioning of depressed persons, psychobiology of affective disorders, depression in children, postpartum depression, suicide issues in the treatment of depression, and cultural aspects of affective disorders. Prerequisite: graduate standing in Psychology or consent of instructor.

1-3 units (Gotlib) not given 2004-05

PSYCH 235. American Indian Mental Health and Education—(Enroll in EDUC 340X.)

3-5 units, Spr (LaFromboise)

PSYCH 239. Developmental Anomalies—(Undergraduates register for 143; see 143.)

3 units (Johnson) not given 2004-05

PSYCH 240. Language Acquisition I—(Enroll in LINGUIST 140/240.)

4 units, Aut (E. Clark)

PSYCH 241. Language Acquisition II: Advanced Topics in Language Acquisition—(Enroll in LINGUIST 241.)

1-4 units, Win (E. Clark)

PSYCH 243. General Development Seminar—Prerequisite: consent of instructors.

1-2 units, Win (Markman, A. Fernald, Kirkham)

PSYCH 244. Psychology of Aging—Theory and research in gerontology. Normal and abnormal changes that occur in biological, cognitive, and psychological aging. Emphasis is on the environmental factors that influence the aging process. Prerequisite: graduate standing in Psychology or consent of instructor.

1-3 units (Carstensen) alternate years, given 2005-06

PSYCH 245. Social Psychological Perspectives on Stereotyping and Prejudice—(Undergraduates register for 180.) Classic and contemporary social psychological approaches to prejudice and stereotyping. Emphasis is on how stereotypes are employed and maintained, and the influence of stereotyping and prejudice on behavior in domains including education, employment, politics, and law. Limited enrollment.

3 units (Eberhardt) not given 2004-05

PSYCH 248. Introduction to Test Theory—(Enroll in EDUC 252.)

3-4 units (Haertel) not given 2004-05

PSYCH 249A. Problems in Measurement: Item Response Theory—(Enroll in EDUC 353A.)

3 units (Haertel) not given 2004-05

PSYCH 250. High Level Vision—Theories and ongoing research. Topics: behavioral studies pertaining to representation of objects; generalization and invariances; learning new categories; neuropsychological deficits; properties of high level visual areas in monkey and humans; theories and models of object and face recognition.

1-3 units, Aut (Grill-Spector)

PSYCH 251. Affective Neuroscience—Focus is on theory and research in the field of affective neuroscience. Comparative and human research approaches map affective function to both neuroanatomical and neurochemical substrates. Prerequisite: consent of instructor.

3 units, Aut (Knutson)

PSYCH 252. Statistical Methods for Behavioral and Social Sciences—

For students who seek experience and advanced training in empirical research. Analysis of data from experimental through factorial designs, randomized blocks, repeated measures; regression methods through multiple regression, model building, analysis of covariance; categorical data analysis through two-way tables. Integrated with the use of statistical computing packages. Prerequisite: 10 or equivalent. (PSE)

1-6 units, Aut (Monin, Thomas)

PSYCH 253. Statistical Theory, Models, and Methodology—Practical and theoretical study of advanced data analytic techniques such as loglinear models, signal detection, meta-analysis, logistic regression, reliability theory, and factor analysis. Prerequisite: 252 or EDUC 257.

3 units (Thomas) alternate years, given 2005-06

PSYCH 254. Frontiers of Personality—In the 70s, personality research almost disappeared from psychology. Recently, there has been a resurgence of interest in it, especially from fields outside traditional psychology. New findings from fields such as genetics, neuroscience, medicine, and health psychology. Readings from current science journals with an emphasis on the interdisciplinary integration and applications of personality research.

3 units (Knutson) not given 2004-05

PSYCH 255. Topics in Personality and Abnormal Psychology—Graduate seminar. Prerequisite: consent of instructor.

1-3 units, Aut (Horowitz)

PSYCH 256. Topics in Language and Cognition—Prerequisite: consent of instructor.

1-3 units, Spr (Ramscar)

PSYCH 258. Graduate Seminar in Social Psychology Research—For students who are already or are planning to become involved in research on social construal and the role that it plays in a variety of phenomena, notably the origin and escalation of conflict.

1-3 units, Aut, Win, Spr (Zajonc)

PSYCH 259. Emotions: History, Theories, and Research—(Undergraduates register for 158; see 158.)

1-3 units, Aut (Zajonc)

PSYCH 261. Emotion—(Undergraduates register for 161; see 161.)

3 units, Aut (Gross)

PSYCH 263. Stigma and Marginality—(Undergraduates register for 178; see 178.)

3 units (Eberhardt) not given 2004-05

PSYCH 264. Topics in Human Learning—Recent empirical and theoretical analyses of verbal learning, learning from text, learning of concepts, and intellectual skills. Emphasis is on information processing theories of memory and retrieval. Readings from recent research journals with topics determined partly by students' interests. Discussion format. Prerequisite: 210 or consent of instructor.

1-3 units, Win (Bower)

PSYCH 266. Current Debates in Learning and Memory—Memory is not a unitary faculty, but consists of multiple forms of learning and remembering. The cognitive and neural architectures of memory, focusing on the application of functional brain imaging (primarily fMRI and ERP).

1-3 units (Wagner) alternate years, given 2005-06

PSYCH 267. Cognitive Psychology Concepts in Clinical and Social Psychology—How memory concepts have influenced clinical and social psychology. Topics include childhood amnesia, autobiography, emotions and memory, distortions and illusions of memory, recovery of repressed memories, false memories, implicit memories, unconscious influences, and theories of psychopathology. Social topics include stereotypes, self-serving biases, and two-process theories of attitudes. Textbook chapters and outside readings represented weekly by small student groups.

1-3 units, Win (Bower)

PSYCH 268. Emotion Regulation—(Undergraduates register for 168; see 168.)

3 units, Win (Gross)

PSYCH 269. Graduate Seminar in Personality Research—Can be repeated for credit. Prerequisite: graduate standing in Psychology.

1-2 units, Aut, Win, Spr (Gotlib)

PSYCH 270. The Psychology of Everyday Morality—For graduate students, coterminals, and senior Psychology majors. A review of traditional approaches focusing on how morality colors mundane human activities such as eating and on morality as defined by actors themselves rather than social scientists. Past and present work bearing on this question includes moral hypocrisy, food and disgust, taboo trade-offs, moral reproach, and prejudice with compunction. Limited enrollment. Prerequisite: 70 and consent of instructor.

6 units, Win (Monin)

PSYCH 271. Applications of Social Psychology—(Undergraduates register for 156; see 156.)

1-4 units (Ross) not given 2004-05

PSYCH 272. Special Topics in Psycholinguistics—May be repeated for credit. Prerequisite: consent of instructor.

1-3 units, Win (H. Clark)

PSYCH 275. Graduate Research—Intermediate-level research undertaken with members of departmental faculty. Prerequisite: consent of instructor.

1-15 units, Aut, Win, Spr, Sum (Staff)

PSYCH 278. Neuroeconomics—(Same as ECON 178/278.) Techniques from neuroscience and psychology to study how the brain makes economic decisions; implications for the social sciences, especially economics and political science. Topics include: brain processes related to reward, control, and attention; role of emotion in decision making; morality; emotion in social encounters; bargaining and strategic thinking; decision making and probability assessment in risky situations; intertemporal decision making; and addiction. Prerequisite: graduate background in neuroscience or economics, or consent of instructor.

3 units, Aut (Knutson, Rangel)

PSYCH 279. Topics in Cognitive Control—The processes that enable flexible behavior by biasing contextually relevant perceptual, mnemonic, and response representations or processing pathways. Cognitive control is central to volitional action, allowing work with memory, task/goal states, and overriding inappropriate responses. Current models of cognitive control, functional neuroimaging, and neuropsychological evidence.

1-3 units, Spr (Wagner)

PSYCH 281. Practicum in Teaching—Enrollment limited to teaching assistants in selected Psychology courses. May be repeated for credit.

1-4 units, Aut, Win, Spr, Sum (Staff)

PSYCH 282. Practicum in Teaching PSYCH 1—Logistical T.A. training including: preparing for sections; creating, proctoring, correcting exams; grading an iterative writing assignment; office hours; review sessions; A/V expertise; communicating via coursework. Review of student evaluations with instructor to set goals and strategies. Limited to current PSYCH 1 T.A.s.

1-2 units, Aut, Win, Spr (Quill)

PSYCH 283. Interdisciplinary Seminar on Conflict and Dispute Resolution—(Same as LAW 611, MS&E 459.) Problems of conflict resolution and negotiation from an interdisciplinary perspective. Presentations by faculty and scholars from other universities.

1 unit, Win (Hensler, Ross)

PSYCH 285. Contemporary Issues in Peace Studies—(Undergraduates register for 185; see 185.)

3 units, Spr (Bland, Ross, Holloway)

PSYCH 290. Graduate Research Methods—Primary tool use for psychologists: basics of experiment design; computer-based experiments; web-based experiments; data analysis packages and data presentation; exploratory statistics; eye-tracking methods; psychophysiology methods; survey construction; corpus and discourse analysis; and perhaps hypnosis. Prerequisite: Ph.D. standing in Psychology.

2 units, Win (Richardson)

PSYCH 296. Methods in Personality and Social Psychology—Practicum. Focus is on developing methodological skills in personality and social psychology. Experimental survey and multivariate methods. Topics: archival and correlational studies; experimental and quasi-experimental design; formulating the research problem; going from abstract ideas to concrete instances; handling research artifacts; measuring and analyzing change data; observational techniques; organizing data: professional and ethical issues; triangulation; validity and reliability of measurement. Research proposal. Prerequisite: graduate standing in Psychology or consent of instructor.

1-3 units (Lepper, Steele) not given 2004-05

PSYCH 297. Seminar for Coterminial Master of Arts—Contemporary issues and student research. Student and faculty presentations.

1-2 units, Aut, Win, Spr (Thomas)

PSYCH 459. Frontiers in Interdisciplinary Biosciences—(Crosslisted in departments in the schools of H&S, Engineering, and Medicine; student register through their affiliated departments; otherwise register for CHEMENG 459) See CHEMENG 459 or http://biox.stanford.edu/courses/459_announce.html.

1 unit, Aut, Win, Spr (Robertson)

PUBLIC POLICY PROGRAM

Director: David Brady (Political Science, Hoover Institution)

Associate Director: Geoffrey Rothwell (Senior Lecturer, Economics)

Executive Committee: Jonathan Bendor (Business), Morris Fiorina (Political Science), Luis Fraga (Political Science), Daniel Kessler (Business and Law), Roger Noll (Economics), Susan Olzak (Sociology), Leonard Ortolano (Civil and Environmental Engineering), Debra Satz (Philosophy)

Affiliated Faculty and Staff: Donald Barr (Human Biology), Coit Blacker (Stanford Institute for International Studies), Timothy Bresnahan (Economics), M. Kate Bundorf (Health Research and Policy), John Cogan (Hoover Institution), Ken Dauber (Sociology), Luis Fraga (Political Science), Judith Goldstein (Political Science), Lawrence Goulder (Economics, Institute for International Studies), Henning Hillmann (Sociology), Mark Hlatky (Health Research and Policy), Nicholas Hope (Center for Research on Economic Development and Policy Reform), Michael Kirst (Education), Thomas MaCurdy (Economics), Mark McClellan (Economics, School of Medicine; on leave), Robert McGinn (Management Science and Engineering), Milbrey McLaughlin (Education), Debra Meyerson (Education), Terry Moe (Political Science), Norman Nie (Political Science), Bruce Owen, (Economics), James Phills (Business), A. Mitchell Polinsky (Law), Andy Rutten (Political Science), Timothy Stanton (Health Research and Policy), Myra Strober (Education), Barton Thompson (Law), Nancy Brandon Tuma (Sociology), Barry Weingast (Political Science), Scott Wilson, Frank Wolak (Economics)

Lecturers: Laura Arrillaga, Christophe M. Crombez, Melanie Edwards, Paul Frankel, William Hauk, Jongryn Mo, Roger Printup, Bruce Sievers, Mary Sprague, Jeffrey M. Steen, Peter Stone, Scott Wilson, Patrick Windham

Visiting Professor: Christopher M. Crombez

Visiting Associate Professor: Eva Meyersson Milgrom

Department Offices: Encina Hall West, Room 100

Mail Code: 94305-6050

Department Phone: (650) 723-3452

Web Site: <http://www.stanford.edu/dept/publicpolicy/>

Courses given in Public Policy Program have the subject code PUBLPOL. For a complete list of subject codes, see Appendix.

Government plays an important, ubiquitous role in contemporary society. Moreover, the growing complexity of public policies, the political processes that give rise to them, and the organizations that implement them have created a need in government, business, and the nonprofit sector for people who understand how government operates. The Public Policy Program provides students with the foundational skills and institutional knowledge necessary for understanding the policy process, and provides an interdisciplinary course of study in the design, management, and evaluation of public sector programs and institutions. The major in Public Policy is useful as preparation for employment as an analyst in government agencies or business; as a foundation for postgraduate professional schools in business, education, law, and public policy; and as preparation for graduate study in the social sciences, especially economics, political science, and sociology. For more details about the Public Policy Program, including updated information about course offerings and other activities, see <http://www.stanford.edu/dept/publicpolicy/>.

UNDERGRADUATE PROGRAMS BACHELOR OF ARTS

The core courses in the Public Policy Program develop the skills necessary for understanding the political constraints faced by policy makers, assessing the performance of alternative approaches to policy implementation, evaluating the effectiveness of policies, and appreciating the sharp conflicts in fundamental human values that often animate the policy debate. After completing the core, students apply these skills by focusing their studies in one of several areas of concentration. The

areas of concentration address specific field of public policy, types of institutions, or a deeper development of the tools of policy analysis. A list of recommended courses for each concentration is available in the Public Policy Program office. Areas of concentration are:

- Advanced Methods of Policy Analysis
- Business Policies
- Design of Public Institutions
- Development and Growth Policies
- Education
- Environment, Resources, and Population
- Health Care
- International Policies
- Law and the Legal System
- Media and Policy
- Science and Technology Policy
- Social Entrepreneurship
- Social Policy: Discrimination, Crime, Poverty
- Urban and Regional Policy

Completion of the program in Public Policy requires 83 units of course work.

1. 35 units of prerequisite courses: POLISCI 2; ECON 1, 50, 102A, 102B; SOC 160 or MS&E 180; and either MATH 19 and 20, or 41. In addition, students may be required to take ECON 50M before enrolling in ECON 50, and are encouraged to take MATH 42 and 51, and at least one course in linear algebra.
2. Five additional units of analytical skills courses. Among the courses that satisfy the requirement are ECON 51, 52, 102C; HISTORY 206 and POLISCI 151A, 152. For current information about courses that fulfill this requirement, check with the program office.
3. The 25-unit sequence of 5-unit core courses, which students should plan to complete by the end of their junior year (see below for descriptions 101-105). To satisfy the core requirement in Philosophy, students must take PUBLPOL 103A or 103B.
4. Majors must complete 15 units of course work in an area of concentration. The 15 units of post-core course work must be approved by an adviser, who is appointed when the student selects an area of concentration. This usually is done midway through the junior year, and must be done *no later than* the end of the second week of Autumn Quarter in the senior year.
5. Seniors are required to participate in one quarter (3 units) of the Senior Seminar (PUBLPOL 200). Majors also must submit at least one research paper during the senior year and present it before the Senior Seminar. The senior paper may be a term paper for either the senior seminar or another course, or an honors thesis.
6. A maximum of 10 units may be taken on a satisfactory/no credit basis in the prerequisite courses for the Public Policy core. All remaining courses required for Public Policy majors must be taken for a letter grade.
7. Students must complete the Public Policy core and their concentration area courses with a grade point average (GPA) of 2.0 or higher.
8. To become a major in Public Policy and to be nominated for the B.A. degree, students must complete an application, available in the Public Policy Program office.

The Public Policy Program encourages students to participate in various Stanford internship programs, including those available through the Haas Center for Public Service and Stanford in Washington. Students may also participate in the Integrated Scholar Intern Program, combining directed reading and research with an internship. Information about this program is available in the Public Policy program office.

MINORS

The Public Policy Program offers a minor that is intended to provide students with interdisciplinary training in applied social sciences. Students who pursue the minor are required to take the courses listed below for a total of 34 units in Public Policy and its supporting disciplinary departments. Because University rules prohibit double-counting courses, the requirements for a minor differ according to the student's major requirements.

For students whose major department or program requires no courses in economics, political science, or sociology, the requirements for a Public Policy minor are:

<i>Course No. and Subject</i>	<i>Units</i>
ECON 1, 50; PUBLPOL 104	15
POLISCI 2 and PUBLPOL 101	10
MS&E 180 and PUBLPOL 102	9

For students who are Economics majors or who satisfy a major requirement by taking ECON 50, but no courses in political science, the requirements for a Public Policy minor are:

POLISCI 2; PUBLPOL 101	10
PUBLPOL 103	5
PUBLPOL 104	5
PUBLPOL 105	5
MS&E 180 and PUBLPOL 102	9

For students who are Political Science majors or who satisfy a major requirement by taking POLISCI 2 but no courses in Economics, the requirements for a Public Policy minor are:

ECON 1, 50, 102A; PUBLPOL 104	20
PUBLPOL 103	5
MS&E 180 and PUBLPOL 102	9

For Sociology majors, the requirements for a Public Policy minor are:

ECON 1, 50, 102A; PUBLPOL 104	20
POLISCI 2; PUBLPOL 101	10
PUBLPOL 103	5

For students who major in another interdepartmental program (such as International Relations) and who satisfy major requirements by taking ECON 50, POLISCI 2, and an introductory course in statistics (such as ECON 102A or STATS 60), the requirements for a Public Policy minor are:

ECON 102B; PUBLPOL 105	10
PUBLPOL 101	5
PUBLPOL 103	5
PUBLPOL 104	5
MS&E 180 and PUBLPOL 102	9

HONORS PROGRAM

The Public Policy Program offers students the opportunity to pursue honors work during the senior year. To graduate with honors in Public Policy, a student must:

1. Apply for admission to the honors program no later than the end of the second week of Autumn Quarter of the senior year.
2. Complete the requirements for the B.A. in Public Policy and achieve a grade point average (GPA) of 3.3 in the following courses: the Public Policy core, the student's concentration area courses, the Senior Seminar, and PUBLPOL 199 (senior research). Courses not taken at Stanford are not included in calculating the GPA.
3. Enroll in at least 8 but no more than 15 units of PUBLPOL 199 during the senior year and receive a final grade on the senior thesis of at least a 'B+.'

Students who intend to pursue honors work should plan their academic schedules so that most of the core courses are completed before the beginning of the senior year, and all of the core and concentration courses are completed by the end of Winter Quarter of senior year. This scheduling gives students both the time and the necessary course background to complete a senior research project in Spring Quarter. In addition, honors students are encouraged to enroll in PUBLPOL 197, Junior Honors Seminar, during Winter Quarter; this course focuses on developing a research plan and the research skills necessary to complete a thesis. Also, students should plan on taking PUBLPOL 105 during their junior year.

To apply, a student must submit a completed application to the Public Policy Program office with a brief description of the thesis. The student must obtain the sponsorship of a faculty member who approves of the thesis description and who agrees to serve as a thesis adviser. Students intending to write a thesis involving more than one discipline may wish to have two advisers, at least one of which is from the faculty listed above.

The honors thesis must be submitted to both the thesis adviser and the Public Policy Program office. Graduation with honors requires that the thesis be approved by both the adviser and the Director of the Public Policy Program. The role of the director is to assure that the thesis deals

with an issue of public policy and satisfies the standards of excellence of the program. However, the grade for the honors thesis is determined solely by the adviser. The thesis adviser sets the deadlines for receiving the final draft of the thesis; the director sets the deadline for theses to be considered for University and department awards. To graduate with honors at the Spring commencement, a student must submit a final bound copy and an electronic copy of the thesis to the Public Policy program office no later than the last Friday in May. To be considered for awards given to outstanding senior theses, a student must submit a copy of the thesis to the Public Policy program office no later than the third Wednesday in May.

Members of the core faculty in Public Policy are available to provide assistance in selecting a senior thesis topic.

COURSES

WIM indicates that the course satisfies the Writing in the Major requirements.

PUBLPOL 50SI. Current Trends in Policy Making—Guest lectures by and discussions with experts concerning election policy, the budget, health care reform, welfare reform, education, crime, state government, and foreign policy. (AU)
2 units, Spr (Brady)

PUBLPOL 101. Politics and Public Policy—(Same as POLISCI 123.) The domestic policy making process, emphasizing how elected officials, bureaucrats, and interest groups shape government policies in areas including tax, environmental, and social welfare policy, given their goals and available tactics. How public policies are formulated and implemented. Evaluating results of this process using equity and efficiency criteria. Prerequisite: POLISCI 2. GER:3b
5 units, Spr (Brady)

PUBLPOL 102. Organizations and Public Policy—Analysis of public organizations, stressing problems of effective management and incentives in a non-market environment. Prerequisite: SOC 160 or MS&E 180. GER:3b
5 units, Spr (Wilson)

PUBLPOL 103A. Introduction to Political Philosophy—(Enroll in POLISCI 3.)
5 units, Win (Stone)

PUBLPOL 103B. Ethics and Public Policy—(Same as MS&E 197.) Ethical issues in science- and technology-related public policy conflicts. Goal is to develop rigorous critical analysis of complex, value-laden policy disputes. Topics: the natures of ethics and morality; the natures of and rationales for liberty, justice, and human rights; and the use and abuse of these concepts in recent and current policy disputes. Cases from biomedicine, environmental affairs, the technical professions, communications, and international relations. GER:3a
5 units, Win (McGinn)

PUBLPOL 104. Economic Policy Analysis—(Same as ECON 150.) The relationship between microeconomic analysis and public policy making. How economic policy analysis is done and why political leaders regard it as useful but not definitive in making policy decisions. Economic rationales for policy interventions, methods of policy evaluation and the role of benefit-cost analysis, economic models of politics and their application to policy making, and the relationship of income distribution to policy choice. Readings: theoretical foundations of policy making and analysis, and applications to the adoption and implementation of programs. WIM
5 units, Win (Noll)

PUBLPOL 105. Quantitative Methods and Their Applications to Public Policy—Reviews material covered in prerequisites with applications of qualitative independent variable techniques to labor market data. Maximum likelihood estimation and qualitative dependent variable models with an application to voting models. Final papers estimate influence of quantitative and qualitative independent variables on Congressional voting probabilities. Prerequisites: ECON 102A,B. GER:3b
5 units, Spr (Rothwell)

PUBLPOL 124T. Legislatures, Courts, and Public Policy—(Same as POLISCI 124T.) How courts exert power and play a role in creating policy in the U.S. Can or should judges read their own values into law? Can the elected branches check the power of unelected judges? What is good government and how do courts fit into it? Focus is on the Civil Rights Act of 1964 examining the political maneuvers to pass it and recent Supreme Court decisions applying it to affirmative action.
5 units, Spr (Rutten)

PUBLPOL 149L. Special Projects: The Death Penalty: Human Biology, Law, and Policy—(Enroll in HUMBIO 166.)
5 units, Aut, Win, Spr (Abrams)

PUBLPOL 150. Social Entrepreneurship Startup—(Enroll in ENGR 150/250.)
1-6 units, Aut, Win, Spr (Behrman)

PUBLPOL 154. Economics of Legal Rules and Institutions—(Enroll in ECON 154.)
5 units, Win (Owen)

PUBLPOL 163. Formal Organizations—(Enroll in SOC 160/260.)
5 units, Win (Hillmann)

PUBLPOL 164. Comparative Public Policy—Problems, answers, underlying political philosophies, and impacts of public policy choices in areas such as aging populations, health care costs, illegal immigration, terrorism, pollution, and competition from low-cost countries. Focus is on N. America and Europe. GER:3b
3 units, Win (Crombez)

PUBLPOL 168. The Matrix of Change: Managing Diversity—(Same as SOC 168/268.) Diversity in organizations consists not only of racial, cultural, and gender differences, but also differences in perspectives and interests among employees based on profession, assignments, or compensation. Diversity can be a source of strength when different perspectives lead to insight and information, and when pay differences leave room to reward superior performance. It can also be a barrier to communication and cooperation. Policy and managerial issues concerning when and how far to encourage diversity and how to harness its strengths and mitigate the conflicts it can create. GER:3b
5 units, Win (Meyersson Milgrom)

PUBLPOL 169. East Asian Development and Foreign Policy—E. Asian political economy and its implications for U.S. foreign policy. Major issues in E. Asian political economy and security, how to evaluate competing U.S. responses, and proposals for solving policy problems.
5 units (Mo) not given 2004-05

PUBLPOL 172. Mass Media Economics and Policy—Consumer demand for, the economic structure of, and federal regulation and policies affecting print and electronic mass media industries including the Internet. Topics include economies of scale and first-copy costs, production of non-rivalrous consumption goods, demand and supply of diversity and localism, ownership concentration, access barriers, technological change, the role of networks, and efficient risk bearing. Prerequisite: ECON 50 or equivalent preparation in microeconomics. GER:3b
4-5 units, Aut (Owen)

PUBLPOL 180. Social Innovation—The mechanisms and features of social innovation defined as the process of inventing, securing support for, and implementing novel solutions to social needs and problems. Focus is on the social, economic, technical, and organizational mechanisms underlying innovations. Sources include social science theory and research, and insights from the practical world.
4 units, Spr (Phills)

PUBLPOL 181. Environmental Entrepreneurship—The role of business in environmentalism and vice versa. The principles of market forces for positive environmental and economic outcomes. Theoretical issues: defining environmental capitalism and the commons, and market failures and incentives. Practical issues: entrepreneurial solutions to environmental issues, building a strategy, evaluating performance, managing

the enterprise, and creating sustained positive environmental impact and economic value. Business school cases, and theoretical and practical readings. Prerequisites: ECON 1 and 50.

4 units, Aut (Frankel, Steen)

PUBLPOL 181L. Environmental Entrepreneurship Lab—Evaluating and solving environmental needs through market analysis, and designing a business to profitably meet those needs. Models include ecotourism, clean technology ventures, and biodiversity investment vehicles. Students inventory global environmental needs, network across the Stanford campus for innovations, and develop a business plan to launch profitable, sustainable companies. Prerequisites: 181.

3-5 units, Win (Frankel, Steen)

PUBLPOL 182A. Policy Making and Problem Solving at Local and Regional Level: Contested Issues in Silicon Valley—Theory and practice of local and regional integrated service provision and policy formulation and implementation focusing on issues in Silicon Valley including land use, transportation, housing, public finance, and environmental protection. Social, institutional, and organizational landscapes in metropolitan regions, and theories of metropolitan politics. Optional internships with corporate, government, and nonprofit organizations. Students with an internship also register for 182B. Prerequisite: consent of instructor after formal application.

3 units, Win (Stanton)

PUBLPOL 182B. Policy Making and Problem Solving at Local and Regional Level: Community and Economic Development—(Same as INDE 272.) Alternative theories and practice of community and economic development and cross-sector collaboration as approaches to influencing public policy making and problem solving. Emphasis is on non-hierarchical, participatory, and collaborative processes across economic sectors, neighborhoods, and ethnic groups. Regional and local policies and community contexts that support or inhibit such processes. Field trips; optional internships with corporate, government, and nonprofit organizations involved in public issues. Prerequisites: consent of instructor after formal application; internship; 182A.

5 units, Spr (Stanton)

PUBLPOL 183. Philanthropy: Effecting Social Change and Innovation in the Public Sector—(Enroll in URBANST 122).

4 units, Aut (Arrillaga)

PUBLPOL 185. Managing Public Policy—The role of public administration in contemporary government. Major issues: administrative structure, control, relations with other branches of government, the problems of internal organization and management, methods of innovation and change, budgeting, and personnel. GER:3b

5 units, Aut (Printup)

PUBLPOL 187. IT and Society: Unanticipated Consequences of New Technologies—How human inventions impact other inventions, society, the individual, and history. Unintended social consequences of technologies, such as railroads, telegraphs, telephones, automobiles, and jet travel. Group projects focus on the design of a national survey to gauge the social effects of Internet technology (IT) on how people spend their time, including the impact of Internet use on non-work activities such as sleep and time spent with friends and family. Practical and innovative techniques in statistical analysis. GER:3b

3-4 units, Win (Nie)

PUBLPOL 188. California Government and Politics—California, with 34 million people and the world's fifth largest economy, would rank as a superpower if it were a nation. Are California's political institutions suited to these responsibilities? California's social, political, and institutional history, and its politics, elections, and policy making. Distinctive political features such as term limits, the open primary system, and the difficulties posed by Proposition 13. GER:3b

5 units, Spr (Wilson)

PUBLPOL 189. Introduction to Civil Society and the Nonprofit Sector—(Same as URBANST 121.) Development of the idea of civil society from early Enlightenment Europe to the contemporary U.S. Historical and theoretical foundations. Contemporary features of the nonprofit sector including its legal, economic, political, and ethical dimensions. The structure and operation of modern philanthropy and the challenges of the 21st century.

2-4 units, Spr (Sievers)

PUBLPOL 190. Social Innovation and the Social Entrepreneur—(Enroll in URBANST 163A.)

1 unit, Aut (Staff)

PUBLPOL 191. Business Concepts and Skills for the Social Sector—(Enroll in URBANST 163B.)

4 units, Win (Staff)

PUBLPOL 192. Introduction to Social Entrepreneurship—(Enroll in URBANST 163C.)

4 units, Aut (Edwards)

PUBLPOL 193. Social Entrepreneurship Collaboratory—(Enroll in URBANST 163L.)

1-5 units, Aut, Win, Spr (Edwards)

PUBLPOL 194. Technology Policy—The evolution of U.S. technology policy and the way in which policy is made. Topics: federal technology policy before and after WW II, the debate over using R&D programs and other measures to promote economic growth and competitiveness, the impact of federal policy on the development of the Internet and biotechnology, and Internet privacy and genetic privacy as examples of controversies over the social impact of technological activities. Prerequisites: ECON 1, POLISCI 2.

5 units, Win (Windham)

PUBLPOL 195. Business and Public Policy—The relationships among business, government, and interest groups as strategic actors in the non-market environment. Companies attempt to shape public policy through government processes and international politics; interest groups through government processes and by influencing business. Politicians mediate conflicts among businesses and interest groups. Each relationship transcends the conventional view of a business as a market-focused entity that accepts government actions and ignores interest groups. Media and private collective action, business strategies in government arenas, international business and the non-market environment, and corporate responsibility and ethics. Prerequisites: ECON 1, POLISCI 2.

5 units, Win (Hauk)

PUBLPOL 196. The Political Economy of the Federal Budget—Applies the tools of economic analysis to study how the federal government makes its budgetary decisions. The factors that have contributed to the growth in federal spending, taxation, and the national debt; congressional and executive branch budget processes and their effects on government policymaking; spending programs (Social Security, Medicare, welfare, and infrastructure programs). Prerequisites: ECON 50, 52; ECON 52 may be taken concurrently.

5 units (Staff) not given 2004-05

PUBLPOL 197. Junior Honors Seminar—Primarily for students who expect to write an honors thesis. Weekly sessions discuss writing an honors thesis proposal (prospectus), submitting grant applications, and completing the honors thesis. Readings focus on writing skills and research design. Students select an adviser, outline a program of study for their senior year, and complete a prospectus by the end of the quarter. Seniors working on their theses also may enroll and present their research to the seminar participants. Seniors are required to make substantial progress on their thesis by the end of the quarter. Enrollment limited to 25.

5 units, Win (Rothwell)

PUBLPOL 198. Directed Readings in Public Policy

1-5 units, Aut, Win, Spr (Staff)

PUBLPOL 199. Senior Research

1-15 units, Aut, Win, Spr (Staff)

PUBLPOL 200A,B,C. Senior Seminar—Designed to give Public Policy students the opportunity to make oral presentations and to write a paper on a topic in public policy. Topic and methods of analysis used are determined by student in consultation with instructor. How to conduct good research in public policy. Prerequisites: completion of core courses in Public Policy or consent of the instructor.

3 units, A: Aut, B: Win, C: Spr (Sprague)

PUBLPOL 209. Economics and Public Policy—(Enroll in MGTECON 309.)

4 units (Kessler) not given 2004-05

OVERSEAS STUDIES

Courses approved for the Public Policy major and taught overseas can be found in the “Overseas Studies” section of this bulletin, or in the Overseas Studies office, 126 Sweet Hall.

PARIS

PUBLPOL 111. Health Systems and Health Insurance: France and the U.S., a Comparison across Space and Time—(Same as HUMBIO 153X.)

4-5 units, Win (Grenier-Sennelier)

RELIGIOUS STUDIES

Emeriti: (Professors) René Girard, Edwin M. Good, Van Harvey, David S. Nivison

Chair: Arnold Eisen

Professors: Carl W. Bielefeldt (on leave), Arnold M. Eisen, Bernard R. Faure, Robert C. Gregg, Thomas Sheehan, Lee Yearley

Associate Professor: Hester G. Gelber (on leave)

Assistant Professors: Charlotte Fonrobert (on leave), Brent Sockness, Michael Zimmermann

Lecturers: Keila Diehl, Linda Hess, Dayna Kalleres, Naoko Kumada, Noa Ronkin

Senior Lecturer: Adriane Leveen

Acting Associate Professor: Fabrizio Pregadio

Acting Assistant Professor: Barbara Pitkin

Visiting Professor: Ada Rapoport-Albert

Visiting Associate Professor: Aharon Shemesh

Affiliated Staff: Jean-Pierre Dupuy (French and Italian), Maud Gleason (Classics), Jack Kollmann (Russian, East European and Eurasian Studies)

Department Offices: Building 70

Mail Code: 94305-2165

Phone: (650) 723-3322

Web Site: <http://www.stanford.edu/dept/relstud/>

Courses given in Religious Studies have the subject code RELIGST. For a complete list of subject codes, see Appendix.

The purpose of Religious Studies is to understand and interpret the history, literature, thought, and social structures of various religious traditions and cultures. The department offers courses at several levels, described below.

UNDERGRADUATE PROGRAMS**BACHELOR OF ARTS**

The goal of the Religious Studies department’s curriculum is to give students in-depth exposure to the set of phenomena called religion and to the leading theories and methods by which religion is studied in the modern university. The department’s courses are designed both to engage students existentially and to assist students in thinking about the intellectual, ethical, and sociopolitical issues which loom large in the

world’s religions. No less important, the department faculty seek to provide tools for understanding the complex encounters among religious ideas, practices, and communities, and the past and present cultures which have shaped and been shaped by religion. Courses therefore expose students to leading concepts in the field of religious studies such as god(s), sacrifice, ritual, scripture, prophecy, and priesthood; to approaches developed over the past century, including the anthropological, historical, psychological, philosophical, and phenomenological, that open religion to closer inspection and analysis; and to major questions, themes, developments, features, and figures in the world’s religious traditions. The department encourages and supports the acquisition of languages needed for engagement with sacred texts and interpretive traditions.

MAJORS

The curriculum for majors is designed to move students sequentially from foundational courses, through deeper investigations, culminating in integrative, research courses. Thus, the introductory sequence is designed to lead to a wide array of courses which build on this foundation, with topics including: particular traditions such as Judaism or Buddhism; comparative studies such as nonviolence in Hinduism and Buddhism, or Muslim and Christian interpretations of scripture; specific topics such as mysticism, gender and religion, or theodicy; and distinctive approaches such as the philosophy of religion or ritual studies. Majors complete their careers with integrative courses which afford opportunity for research and consolidation of the knowledge and skills gained earlier.

A Bachelor of Arts in Religious Studies requires 60 units of course work. At least 50 units are taken in courses numbered above 100. Ten units out of the 60 may be taken for the grade of satisfactory/no credit.

- At least eight of the 60 units must be courses specifically designed as introductions to the major. Students may satisfy this requirement by taking either:
 - the department’s two quarter Introduction to the Humanities (IHUM) Winter/Spring sequence, or
 - two introductory courses designated as gateway courses. SIS courses are not counted as introductions to the major.
- 37 units are to be taken in intermediate lecture and seminar courses numbered 100-289. Of these, at least two seminars are required from courses numbered above 200. Language courses relating to students’ study of religion within the department (such as Arabic, biblical Hebrew, New Testament Greek, Chinese, or Japanese) may, with departmental approval, be counted among these 37 units.
- 15 units in integrative courses:
 - Majors’ Seminar:* RELIGST 290, Theories of Religion (5 units)
 - Senior Essay Research:* RELIGST 297 (3-5 units; up to 10 units over two quarters); see below for description of the required senior essay.
 - Senior Majors’ Colloquium:* RELIGST 298 (5 units, Spring Quarter)
- Each student, in close consultation with his/her adviser, works out a focus of study centering either on a particular religious tradition or on a theme or problem which cuts across traditions such as ritual, ethics, scripture, or gender.

SENIOR ESSAY

Majors in Religious Studies write a senior essay at least 30 pages in length. The essay allows students to apply knowledge and skills learned in the classroom to a topic of particular academic interest. It also provides a focused scholarly experience under the guidance of a Religious Studies faculty member, thereby offering students a chance to improve research and writing skills indispensable to graduate work in the humanities and useful in a wide variety of professions.

The essay may be on any approved topic in Religious Studies. Students should begin conversations about the senior essay with Religious Studies faculty and the undergraduate director soon after declaring the major. While the bulk of the essay is generally written during the senior year, students are advised to begin conceptualizing a project at the end of the junior year in order to take advantage of summer research opportunities. Students unsure about which faculty member would be most knowledgeable in the area of interest should ask the undergraduate assistant in the department for a copy of the leaflet, *Religious Studies at*

Stanford. A proposal for the senior essay, consisting of a completed application form and a 1-2 page description of the topic signed by the prospective essay adviser, should be submitted by the end of Spring Quarter of the junior year, and in no case later than the end of the third quarter prior to graduation. The application is reviewed by the undergraduate director who either approves the project or requests resubmission with revisions. Further details and guidelines for the senior essay are available from the department undergraduate assistant.

HONORS

Those senior essays judged by a faculty committee to be of exceptional merit and scope receive the honors distinction. Seniors who successfully earn honors are acknowledged publicly during the department's commencement exercise, and the honors distinction is also recorded on the final University transcript and the diploma.

MINORS

A minor in Religious Studies requires a minimum of 7 courses (30-36 units of graded work). Students must declare the minor no later than the last day of the quarter, two quarters before degree conferral.

Requirements for the minor include:

1. Two introductory courses; SIS courses are not counted as introductions to the minor. To satisfy this requirement, students take either:
 - a) the department's two quarter Introduction to the Humanities (IHUM), Winter/Spring sequence, or
 - b) two gateway courses numbered below 100.
2. Five intermediate lecture and seminar courses, 100-289.
3. One course in directed reading (RELIGST 199) may count towards the minor.
4. Students may petition for other Stanford courses to fulfill minor requirements, but they must take courses from at least two Religious Studies faculty members.
5. Students are strongly encouraged to focus their program of study either in a religious tradition or in a theme which cuts across traditions. In consultation with their advisers, students may design the minor in Religious Studies to complement their major.

MAJOR IN RELIGIOUS STUDIES AND PHILOSOPHY

The departments of Religious Studies and Philosophy jointly nominate for the B.A. students who have completed a major in the two disciplines. See a description of this joint major under the "Philosophy" section of this bulletin, or in the guidelines available from the undergraduate director of either department.

GRADUATE PROGRAMS

MASTER OF ARTS

University regulations pertaining to the M.A. are listed in the "Graduate Degrees" section of this bulletin. The following requirements are in addition to the University's basic requirements.

The student completes at least 45 units of graduate work at Stanford beyond the B.A. degree, including a required graduate seminar (304A or B). Residence may be completed by three quarters of full-time work or the equivalent.

The student's plan of courses is subject to approval by the Graduate Director. No field of specialization is expected, but students may focus work in particular areas. Advanced and graduate courses in other departments may be taken. No thesis is required; a thesis, if elected, may count for as many as 9 units.

Each student demonstrates reading knowledge of at least one foreign language.

DOCTOR OF PHILOSOPHY

University regulations regarding the Ph.D. are found in the "Graduate Degrees" section of this bulletin. The following requirements are in addition to the University's basic requirements.

Residence—Each student completes three years (nine quarters) of full-time study, or the equivalent, in graduate work beyond the B.A. degree, and a minimum of 135 units of graduate course work (excluding the dissertation).

Field of Study—The Ph.D. signifies special knowledge of a field of study and potential mastery of an area of specialization within it. The faculty of the department have established certain fields of study in which the department's strengths and those of other Stanford departments cohere. They are: East Asian religions, Christianity, Judaism, religious ethics, and modern Western religious thought. Students who wish to specialize in other fields must obtain early approval by the faculty.

Stages of Advancement—

1. In the first two years, the student refines an area of specialization within the chosen field of study in preparation for candidacy;
2. After attaining candidacy, the student concentrates on the area of specialization in preparation for the qualifying examination; and
3. The student writes a dissertation and defends it in the University oral examination.

Languages—Each student demonstrates a reading knowledge of two foreign languages, including French or German. Each student also demonstrates reading knowledge of other ancient or modern languages necessary for the field of study, area of specialization, and dissertation topic.

Courses—Each student satisfactorily completes the two graduate seminars (304A,B), two quarters of the pedagogy seminar (391), and one reading seminar before the candidacy decision. Other courses are taken with the approval of a faculty adviser in consideration of the student's field of study.

Candidacy—At the end of each academic year, the department's faculty recommend second-year students for candidacy on the basis of all relevant information, and especially on the student's candidacy dossier which includes the approved declaration of an area of specialization, certification for one foreign language, and two substantial papers written for courses during the previous two years.

Paper-in-Field—During the third year, under the supervision of their adviser, students prepare a paper suitable for submission to an academic journal in their field. The paper is read and approved by at least two faculty members in the department.

Teaching Internship—At least one teaching internship under the supervision of faculty members is undertaken at a time negotiated with the Graduate Director. Students receive academic credit for the required internship, which is a project of academic training and not of employment.

Qualifying Examination—To qualify for writing a dissertation, the student must successfully pass a comprehensive examination in the chosen field and the area of specialization. The student must complete the second language requirement before taking qualifying examinations.

Dissertation—The dissertation contributes to the humanistic study of religion and is written under the direction of the candidate's dissertation adviser and at least two other members of the Academic Council. The University oral examination is a defense of the completed dissertation.

PH.D. MINOR IN RELIGIOUS STUDIES

Candidates for the Ph.D. in other departments may select a Ph.D. minor in Religious Studies. The minor requires at least 24 units in Religious Studies at the 200 level or above. Four of the 24 units should be in "Theories and Methods."

JOINT PH.D. IN RELIGIOUS STUDIES AND HUMANITIES

Religious Studies participates in the Graduate Program in Humanities leading to the joint Ph.D. in Religious Studies and Humanities, described in the "Interdisciplinary Studies in Humanities" section of this bulletin.

COURSES

INTRODUCTION TO THE HUMANITIES (IHUM)

The following Introduction to the Humanities courses are taught by Religious Studies department faculty members. IHUM courses are typically available only to freshmen seeking to fulfill GER:1 requirements; see the "Introduction to the Humanities" section of this bulletin for further information. Prospective majors in Religious Studies are advised to consider satisfying their GER:1b,c requirements by registering for the following IHUM courses.

IHUM 68A,B. Approaching Religion: Tradition, Transformation, and the Challenge of the Present—Challenges facing the world's religions in responding to issues such as globalization, feminism, science and technology, individualism, and the demand for pluralism. How to think about these issues through the study of Judaism, Christianity, and Buddhism. How they changed or refused to change in their early histories, and the encounter between religion and the forces of change in the world today. GER:1b,1c (two quarter sequence)

IHUM 68A. 5 units, *Win (Eisen, Gregg)*

IHUM 68B. 5 units, *Spr (Bielefeldt, Eisen)*

INTRODUCTORY

RELIGST 3N. Murder in the Cathedral—Stanford Introductory Seminar. Preference to freshmen. The history and meaning of Canterbury Cathedral as a sacred site. Its origin in 596 as a center for Christian missionary work; its archbishops' disputes with the Norman kings ending in the martyrdom of Thomas à Becket which reverberates in the work of T.S. Eliot and Black Adder; its emergence as a pilgrimage destination in the time of Chaucer. How Henry VIII destroyed St. Thomas' tomb; how the Anglican church appropriated the site for the Archbishops of Canterbury. What makes a sacred site? Why is Canterbury special? Sources include art, architecture, literature, chronicles, and histories. GER:3a

3 units, *Aut (Gelber)*

RELIGST 6N. The Life of the Buddha—Stanford Introductory Seminar. Preference to freshmen. Who was the historical Buddha Siddhartha and what is known about him, his time, and his society? The oldest texts attributed to him and what they reveal about him and his ideas. Sources include Indian literary works in translation, archeology, and art. GER:3a,4a

3 units, *Win (Zimmermann)*

RELIGST 9N. Faith and Reason—Stanford Introductory Seminar. Preference to freshmen. History of the dialogues between faith and reason, supernaturalism and secular humanism, and theology and philosophy within Christianity insofar as it is begins within and emerges from Second Temple Judaism. GER:3a

3 units, *Aut (Sheehan)*

RELIGST 11. Religious Classics of Asia: India's Ramayana Epic—The *Ramayana* as one of the most important religious and cultural texts of India. Its heroes, Rama and Sita, as incarnations of the supreme God and Goddess and models for ideal manhood and womanhood. Textual and performative versions including Valmiki's 2,000-year-old Sanskrit poem, medieval vernacular versions, rural women's folk songs, and the TV serial of 1988-89. *Ramayana* traditions through the lenses of religion, literature, performance, popular culture, gender, and politics. GER:3a,4a

4 units, *Win (Hess)*

RELIGST 12. Introduction to Hinduism—Historical study from earliest period to the present, including religious poetry, narrative, performance, concepts of self and liberation, yoga, ritual, God and gods, views of religion through history, region, class, caste, and gender.

4 units (*Hess*) not given 2004-05

RELIGST 14. Introduction to Buddhism—Basic tenets of Buddhism with focus on its origin, intellectual developments, ethical foundations, and meditative practices. Translations of Buddhist texts from different periods and cultures. The spread of Buddhism throughout Asia and, since the last century, the West. GER:3a,4a

4 units, *Spr (Zimmermann)*

RELIGST 15. The Hebrew Bible—Cultural and religious context including its interactions with Sumerian and Phoenician epic. Recent archeological discoveries that shed light on Israelite religion. Readings of key theological passages. GER:3a

4 units (*Leveen*) not given 2004-05

RELIGST 16. Introduction to S. Asian Buddhism—Focus is on Buddhist intellectual developments from the time of its founder, the historical Buddha Shakyamuni, to contemporary forms in Nepal and Sri Lanka. Basic aspects of Buddhist ethics, ritual, and art. GER:3a,4a

4 units (*Zimmermann*) not given 2004-05

RELIGST 18. Zen Buddhism—Introduction to classical Zen thought in China, its background, origins, and development. GER:3a,4a

4 units (*Bielefeldt*) not given 2004-05

RELIGST 23. Introduction to Judaism—The historical development of Jewish religious thought and practice, from the biblical period to the present. Various kinds of texts reflecting that development: scriptural, liturgical, midrashic, legal, historical, and philosophical. The Sabbath, and yearly festivals and sacred days. GER:3a

4 units (*Staff*) not given 2004-05

RELIGST 24. Introduction to Christianity—GER:3a

4 units (*Pitkin*) not given 2004-05

RELIGST 27. Introduction to Islam—Foundational texts, sources, and ideas that have shaped the spiritual, intellectual, and institutional pluralism of Muslim societies in historical and contemporary contexts. Readings from the Qur'ân, life of the Prophet (*sira*), and other source materials in translation. GER:3a,4a

4 units (*Staff*) not given 2004-05

RELIGST 32. The Problem of God—Gateway course. Monotheism is a belief for which people continue to live and die. Philosophical inquiry into the concept of God through its classic formulations, modern critics, and contemporary defenders. What has the idea of God meant to serious minds in the past? And in the modern or postmodern world? GER:3a

4 units, *Win (Sockness)*

RELIGST 53. Jews and Judaism in America—Development of the Jewish religious tradition in 20th-century America and its role in the life of its ethnic community. Comparison to the role of the church in the life of the African American community. Historical, sociological, and theological works complemented by novels, poetry, films, and TV. GER:3a,4b

4 units (*Eisen*) not given 2004-05

RELIGST 55. Introduction to Chinese Religions—Confucianism, Daoism, Buddhism, and the interchange among these belief systems and institutions. Set against the background of Chinese history, society, and culture, with attention to elite and popular religious forms. GER:3a,4a

4 units, *Win (Pregadio)*

RELIGST 56. Introduction to Daoism—Historical survey from origins to the present. Main schools, notions, communal rites, and individual practices, and the relation of Daoism to different facets of Chinese culture. GER:3a

4 units (*Pregadio*) not given 2004-05

RELIGST 82. Approaches to the Study of Religion: Christianity—Gateway course. Historical and contemporary Christianity from four viewpoints: ritual and prayer; sacred texts and creeds; ethics and life; and community governance. GER:3a

4 units, *Aut (Sheehan)*

RELIGST 84. Mystics, Pilgrims, Monks, and Scholars: Religious Devotion in Medieval Christianity—Gateway course. The variety and vitality of religious expression in medieval Christian Europe. How Christians sought God through mystical encounter, the structure of monastic life, visits to shrines, devotion to the saints, and the study of scripture and ancient Christian wisdom. Readings focus on primary texts. GER:3a

4 units, *Spr (Pitkin)*

UNDERGRADUATE LECTURES

RELIGST 105. Spiritual, not Religious: What Does this Phrase Mean?—Does this often-voiced formula mark a significant cultural change? Viewpoints and philosophies that present themselves as spiritual in books and films, and in the language and practices of adherents. What are the central ideas and convictions of the spiritual, not religious, person or group? What do spirit and spiritual connote that creates distance from religious ideas and practices? GER:3a,4a

4 units, Win (Gregg)

RELIGST 107/207. Hindus and Muslims in South Asia—Hindus and Muslims have been living together in S. Asia for over 1000 years in peace and conflict, creating composite cultures and interdependent social worlds. In 1947, they split violently into separate nations, yet 100 million Muslims remain in India. The history of Hindu and Muslim life in the subcontinent, including religious literature, arts, practices, and sociopolitical formations. GER:3a,4a

5 units, Spr (Hess)

RELIGST 112. Handmaids and Harlots—Miraculous births, wandering in the wilderness, encounters with angels: scriptural stories of women such as Hagar, Sarah, Hannah, and Mary, and how their tales are read and re-told by later Jews and Christians. Sources include the Hebrew Bible and New Testament, Jewish and Christian commentary, and religious iconography. GER:3a,4c, WIM

5 units, Win (Leveen, Pitkin)

RELIGST 113. Zhuangzi and the Daoist Idea of Sainthood—Passages of the *Zhuangzi* with reference to its views of the Dao and the application of those views to self-cultivation, ethics, government, and the ideal of sainthood. GER:4a

4 units, Spr (Pregadio)

RELIGST 117. New Testament and Christian Origins—The origins of Christianity from its roots in 1st-century Judaism and Greco-Roman culture to the 2nd century C.E.. Close reading of the New Testament and related texts to set the varieties of early Christianity in their historical, economic, social, and political contexts. GER:3a,4a

5 units, Win (Kalleres)

RELIGST 119/219. Gandhi and Nonviolence—Gandhi's life; his advocacy and practice of nonviolence in political movements in India and S. Africa; Indian religious sources of *ahimsa* or nonviolence; political interpretations of the *Bhagavad Gita*; Gandhian theory of nonviolence; adaptations of Gandhian nonviolence for conflict resolution in the world; critiques of Gandhi. GER:3a,4a

4 units (Hess) alternate years, given 2005-06

RELIGST 120. Islam in Asia—The historical diversity and development of Muslim life, thought, and culture in S. Asia, home to a third of the world's Muslims. The contemporary situation of Muslims in S. Asian countries such as Afghanistan, Bangladesh, India, and Pakistan. GER:3a,4a

4 units (Staff) not given 2004-05

RELIGST 122. Radical Catholicism—Past, present, and future of Roman Catholicism in Europe and the Americas. Its roots in Second Temple Judaism and the Greco-Latin world, the structural crises of contemporary Catholicism in governance, spirituality, doctrines, and morals, and the possibility of radical change in those areas. GER:3a

4 units, Win (Sheehan)

RELIGST 125. Catholic Reformation—Reform and renewal of Roman Catholicism in the 16th century through key figures and movements such as Erasmus, Ignatius of Loyola, Teresa of Avila, and the Council of Trent. GER:3a

4 units (Pitkin) not given 2004-05

RELIGST 126. Protestant Reformation—16th-century evangelical reformers (Luther, Calvin) and reform movements (Lutheran, Reformed, Anabaptist) in their medieval context. GER:3a

4 units, Aut (Pitkin)

RELIGST 127. Introduction to Classical Judaism—The genres of classical Jewish literature and the issues which shaped its worldview. Selections from rabbinic (Jewish sacred) texts in English translation: Midrash, Mishnah, and Talmud. Topics include the biblical background, the emergence and nature of rabbinic authority and its institutions, the religious importance of discipleship, the legitimacy of dissent, diaspora versus Israel, perceptions of other religions and cultures, the tension between commitment to family and commitment to religious life. GER:3a

4 units (Fonrobert) not given 2004-05

RELIGST 133. Reading the Bible Today—How did Israelites identify themselves? Did the Exodus happen? Why did Deborah have so much power? The influence of recent interpretations such as ethnic studies, literary approaches, feminist critique, and archeological discoveries on contemporary readings and reception of the biblical texts. GER:3a

4 units, Win (Leveen)

RELIGST 138. Faith, Doubt, and Ethics—Comparative examination of five 20th-century theological classics from the Protestant, Jewish, and Roman Catholic traditions: Karl Barth's *Epistle to the Romans*, Martin Buber's *I and Thou*, Reinhold Niebuhr's *Moral Man and Immoral Society*, Paul Tillich's *Courage to Be*, Abraham Heschel's *Man is Not Alone*, and Karl Rahner's *Foundations*. GER:3a

4 units, Spr (Sockness)

RELIGST 156/256. Goddesses and Gender in Indian Religion—(Graduate students register for 256.) Introduction to the abundant female forms of the divine in India; goddesses' stories, iconographies, worship; lives and religious practices of women and men; constructions of gender in religion and society. Readings in history, myth, poetry, ritual, ethnography, sociology. Films. GER:3a,4c

4 units (Hess) not given 2004-05

RELIGST 159/259. Religion and the Arts in India—(Graduate students register for 259.) Focus is on relationship between the ancient and present in religion and music. Guest Indian musicians demonstrate, discuss, and teach practical basics of music. Readings on mantra, sound as ultimate reality, aesthetic theory, music as yoga, guru-disciple relationship, devotional poetry and song, gods' iconographies and stories, history, musicians' lives, types of music including classical, folk, Hindu, Muslim, and Sikh. North Indian musical forms, instruments, and theories. GER:3a,4a

4-5 units, Aut (Hess)

RELIGST 164. Ritual Music of the World—(Enroll in CASA 164, MUSIC 164)

4 units, Win (Diehl)

RELIGST 165/265. Religious Ritual—(Graduate students register for 265.) What is ritual? Why is it such an important human activity? Is there something specifically religious about it? The nature of ritual; religious and secular, public and private examples; and theories of ritual. GER:3a

4-5 units (Staff) not given 2004-05

RELIGST 166/266. Eastern European Jewish Mysticism: The Hasidic Movement—(Same as JEWISHST 166/266; graduate students register for 266.) The emergence of Hasidism as a religious revival movement, its rapid spread in the face of militant opposition, and the evolution of its religious doctrine and patterns of social organization, from the mid-18th century to the present. Issues include the historiography of Hasidism, kabbalistic origins, messianic orientation, diversity of styles, charismatic leadership, the position of women, and literary output.

4 units, Spr (Rapoport-Albert)

RELIGST 169. Christianity in Late Antiquity—Communal struggles, personal rivalries, theological conflicts, and social controversies in the early church (2nd-6th centuries C.E.) that shaped Christianity and its history. Issues include: heresy and orthodoxy; hierarchy and charisma; gender and class; persecution and martyrdom; paganism and classical tradition; creeds and councils; asceticism and the body; church and state; and eastern and western Christianity. GER:3a

4 units, Spr (Kalleres)

RELIGST 172. Sex, Body, and Gender in Medieval Religion—Anxiety about sex and the body increased during the early years of Christianity, while the doctrine of the Incarnation put the human body at the center of religious concern. Ideals of virginity, chastity, ascetic self-denial of necessities like food, sleep, and freedom from pain were central to lay and clerical piety. The religious theory and practice associated with questions about sex, body, and gender in the Middle Ages as constructed in literature, mythology, ritual, mystic, and monastic texts. GER:3a,4c
4 units (*Gelber*) not given 2004-05

RELIGST 181A. Adventures in Religious Poetry—(Same as ENGLISH 181A.) Preference to majors. GER:3a
5 units (*Fields, Yearley*) not given 2004-05

RELIGST 185. Prophetic Voices of Social Critique—Judges, Samuel, Amos, and Isaiah depict and question power, strong leaders who inevitably fail, the societal inequities and corruption inevitable in prosperity, and the interplay between prophet as representative of God and the human king. How these texts succeed in their scrutiny of human power and societal arrangements through attention to narrative artistry and poetic force, and condemnation of injustice. May include a service-learning component in conjunction with the Haas Center. GER:3a
4 units, *Spr (Leveen)*

UNDERGRADUATE DIRECTED READING

RELIGST 199. Individual Work—Prerequisite: consent of instructor and of the department.
1-15 units, *Aut, Win, Spr (Staff)*

UNDERGRADUATE SEMINARS

RELIGST 211. Religion, Politics, and American Democracy—(Same as HUMNTIES 196H.) Seminar. Should religious arguments have a public role in policy debates in a democratic society that includes conflicting religious conceptions of the good? Does the separation of church and state require a completely secular society? Readings include Rawls, Rorty, Carter, Hauerwas, and Stout.
5 units, *Win (Harvey)*

RELIGST 212. Chuang Tzu—Interpretive approaches to the challenges presented by the Taoist text, the *Chuang Tzu*. Limited enrollment. GER:3a
4 units (*Yearley*) not given 2004-05

RELIGST 213. Daode Jing—Passages from the *Daode jing (Scripture of the Way and its Virtue)* and their interpretation in major traditional commentaries. Topics include Daoist metaphysics, the ideal of sainthood, the view of rulership and society, and the Daoist notions of non-action, spontaneity, and return to the Dao. GER:4a
4 units, *Aut (Pregadio)*

RELIGST 216/316. Doctrine and Practice in Theravada Buddhism—(Graduate students register for 317.) The religious principles, practices, underlying doctrines, and the accommodation between religion and society in the Theravada tradition of Sri Lanka and S.E. Asia. The origins of Buddhism in ancient India, the consolidation of the Theravada tradition, the development of its monastic, intellectual, and lay communities, its spread across S.E. Asia, and modern transformations and trends. Anthropological and textual perspectives, and methodological difficulties. GER:4a
4-5 units, *Win (Kumada, Ronkin)*

RELIGST 217/317. Japanese Studies of Religion in China—(Graduate students register for 317.) Readings in Japanese secondary sources on Chinese religions.
3 units, *Aut (Kumada)*

RELIGST 218/318. Buddhist Ethics: Nonviolence and Compassion—(Graduate students register for 318.) Approaching Buddhist ethics descriptively. The position of ethics in Indian Buddhism, its relation to Buddhist soteriological goals, and changes since the founder. Themes include nonviolence (*ahimsa*), compassion, bodhisattva, the ascetic saint (*arhat*), and social activism. Readings of Buddhist literature in translation. GER:4a
4 units, *Spr (Zimmermann)*

RELIGST 221/321. Modern Judaism—(Graduate students register for 321.) Changes in Judaism over the last two centuries with focus on emancipation, Zionism, and developments in theology and practice. GER:3a
5 units, *Spr (Eisen)*

RELIGST 225. The Secrets of the Dead Sea Scrolls—The scrolls discovered between 1947 and 1960 in the caves near Hirbat Qumran on the N.W. shore of the Dead Sea provide first-hand information on a Jewish group living at the time of the Second Temple. Contents and main genres of scroll literature. The sect's community social structure, member beliefs, and religious law and practices. New information concerning the origins of Christianity and Rabbinic Judaism.
4 units, *Win (Shemesh)*

RELIGST 232. God: A Biography—Readings in the Hebrew Bible illuminate a God who walks among human beings, appears on mountain top and in cloud, and can be challenged and conciliated. Genesis, Exodus, the prophet Ezekiel, and Job convey the dimensions in which the religious imagination encounters the Hebrew God. Recent works such as *The God of Old*, *The Divine Symphony*, and *An Early History of God* in which ancient multidimensional approach to God re-emerges. GER:3a
4 units, *Aut (Leveen)*

RELIGST 235. Pilgrimage and Sacred Landscapes—(Same as CASA 135X.) Perspectives include cultural, spiritual, psychological, medical, economic, and political. Christianity, Buddhism, Hinduism, Islam, Native American, and secular; sources include Europe, Tibet, India, Native America, and the Middle East. Why do pilgrims often make their journeys difficult and painful? How do landscapes become sacred? What happens when places such as Jerusalem are intersections for groups with different belief systems? Contemporary U.S. destinations such as Graceland and the Vietnam Memorial; journeys of personal or non-parochial cultural significance. GER:3a
4 units, *Aut (Diehl)*

RELIGST 242. Philosophy of Religion—A phenomenological examination of epistemological and metaphysical issues that arise in the confrontation between radical human finitude and the experiences and claims of religious life. Texts from St. Paul, St. Augustine, Heidegger, and Levinas.
4 units, *Win (Sheehan)*

RELIGST 245. Religion, Reason, and Romanticism—(Same as HUMNTIES 196B.) The late 18th-century European cultural shift from rationalist to romantic modes of thought and sensibility. Debates about religion as catalysts for the new *Zeitgeist*. Readings include: the Jewish metaphysician, Mendelssohn; the dramatist, Lessing; the philosopher of language and history, Herder; the critical idealist, Kant; and the transcendental idealist, Fichte. GER:3a
5 units, *Spr (Sockness)*

RELIGST 245S. Islam and the West—(Enroll in POLISCI 245S.)
5 units, *Spr (Milani)*

RELIGST 251/351. Readings in Indian Buddhist Texts—(Graduate students register for 351.) Introduction to Buddhist literature through reading original texts in Sanskrit. No prior knowledge of Sanskrit required. GER:3a
4-5 units, *Win (Zimmermann)*

RELIGST 256E. Political Anthropology from Rousseau to Freud—(Enroll in FRENGEN 256E.)
3-5 units, *Spr (Dupuy)*

RELIGST 258. Japanese Buddhist Texts—Readings in medieval Japanese Buddhist materials. Prerequisite: background in Japanese and/or Chinese.
3-5 units (*Staff*) not given 2004-05

RELIGST 267. Readings in East Asian Religious Texts—Readings from primary sources. Prerequisite: classical Chinese.
4 units, *Spr (Pregadio)*

RELIGST 268. Model Selves: Francis of Assisi—Francis as the model of a model self through his works and the stories that grew up around him. Emphasis is on the idea of model self in myth and history with reference to other such selves, both male and female. GER:3a

5 units (*Gelber*) not given 2004-05

RELIGST 270. Science and Religion—Team-taught. Relations between the fields via case studies drawn primarily from biology and Judaism highlighting both similarities and differences. A review of current debates, with emphasis on genetics, the evolution of learning, communication, ritual and tradition, and the role of religious and scientific communities. GER:3a

4 units (*Bergman, Eisen*) not given 2004-05

RELIGST 271A,B. Dante's Spiritual Vision—Mysticism, poetry, ethics, and theology in Dante's *Divine Comedy*. Supplementary readings from classical authors such as St. Augustine and St. Thomas, and from modern writers. Students may take 271A without B. GER:3a

4 units, **A:** Win, **B:** Spr (*Yearley*)

RELIGST 275/375. Kierkegaard and Religious Existentialism—(Graduate students register for 375.) Close reading of Kierkegaard's pivotal work, *Concluding Unscientific Postscript*. The discovery and appropriation of Kierkegaard in the 20th century by Christian and Jewish thinkers. GER:3a

4 units, Aut (*Sockness*)

RELIGST 278. Heidegger, Rahner, and God—A critical presentation of the post-1989 paradigm shift in Heidegger research and its relevance to questions of religion and God. Prerequisite: consent of instructor. GER:3a

5 units (*Sheehan*) not given 2004-05

RELIGST 290. Majors Seminar—Majors seminar. An introduction to Religious Studies through the fields and approaches represented by the faculty of the Stanford Department of Religious Studies. WIM

4 units, Win (*Faure*)

RELIGST 297. Senior Essay—Prerequisite: consent of instructor and of the department.

3-5 units, Aut, Win, Spr (*Staff*)

RELIGST 298. Senior Colloquium—For Religious Studies majors writing the senior essay. Students present work in progress, and read and respond to others. Approaches to research and writing in the humanities.

5 units, Spr (*Hess*)

GRADUATE SEMINARS, RESEARCH, AND TEACHING

Topics of directed research (numbers ending in 9) vary each year according to student initiative and faculty research interests.

RELIGST 304A,B. Theories and Methods—Required of all graduate students in Religious Studies. Various approaches to the study of religion. Prerequisite: consent of instructor.

RELIGST 304A. 4 units (*Yearley*) not given 2004-05

RELIGST 304B. 4 units, Aut (*Faure*)

RELIGST 305. Medieval Daoist Texts—Readings from primary sources. Prerequisite: classical Chinese.

3-5 units (*Pregadio*) not given 2004-05

RELIGST 310. Buddhist Intellectual History: Buddha-Nature—The Mahayana ideal that all sentient beings have the nature of a buddha (*tathagatagarbha*), formulated in 3rd-century C.E. India, and its impact on the intellectual history of Central and E. Asia. The basic scriptures of buddha-nature thought and the forms of its expression in India. Hermeneutical problems concerning the interpretation of buddha-nature thought in the Indo-Tibetan tradition.

3-5 units (*Zimmermann*) not given 2004-05

RELIGST 311A,B. Buddhist Studies Seminar

5 units (*Faure*) not given 2004-05

RELIGST 312. Buddhist Studies Proseminar—Research methods and materials. Prerequisite: reading knowledge of Chinese or Japanese.

2 units (*Staff*) not given 2004-05

RELIGST 313. Buddhist Iconography and Ritual

3-5 units, Aut (*Faure*)

RELIGST 322. Readings in Rabbinic Texts

3-5 units (*Fonrobert*) not given 2004-05

RELIGST 323. Biblical Conceptions of Tradition—Competing biblical notions of tradition and of memory in Numbers and Deuteronomy.

3-5 units (*Leveen*) not given 2004-05

RELIGST 325. Readings from the Literature of Hasidism—Primarily for graduate students. Readings in Hebrew with English translation when available. Prerequisite: Hebrew.

3-5 units, Spr (*Rapoport-Albert*)

RELIGST 338. Medieval Seminar—Medieval literature as a branch of ethics with the purpose of teaching people how to fulfill the functions of their station in life and please God. The culture of the period through ethical ideals in philosophical, theological, and literary texts. Connections among ethics, cosmology, sacred history, anthropology, and soteriology in the medieval world view. Medieval ethical beliefs as a window on medieval intellectual culture.

4 units (*Gelber*) not given 2004-05

RELIGST 370. Comparative Religious Ethics—The difference the notion of the religious makes in religious ethics and how it affects issues of genre. Theoretical analyses with examples from W. and E. Asia. May be repeated for credit. Prerequisite: consent of instructor.

4 units, Spr (*Yearley*)

RELIGST 375. Kierkegaard and Religious Existentialism—(Same as 275; see 275.)

4 units, Aut (*Sockness*)

RELIGST 376. The Holy: Readings in Phenomenology—Prerequisite: consent of instructor.

3-5 units (*Sheehan*) not given 2004-05

RELIGST 389. Individual Work for Graduate Students—Prerequisite: consent of instructor.

1-15 units, Aut, Win, Spr (*Staff*)

RELIGST 390. Teaching in Religious Studies—Required supervised internship.

4 units, Aut, Win, Spr (*Staff*)

RELIGST 391. Pedagogy—Required of Ph.D. students.

1 unit, Aut, Win, Spr (*Staff*)

RELIGST 392. Candidacy Essay—Prerequisite: consent of graduate director.

1-15 units, Aut, Win, Spr (*Staff*)

RELIGST 395. Master of Arts Thesis

2-9 units, Aut, Win, Spr (*Staff*)

RELIGST 399. Recent Works in Religious Studies—Readings in secondary literature for Religious Studies doctoral students.

1-2 units, Spr (*Sockness*)

OVERSEAS STUDIES

Courses approved for the Religious Studies major and taught overseas can be found in the "Overseas Studies" section of this bulletin, or in the Overseas Studies office, 126 Sweet Hall.

BEIJING

RELIGST 19B. Philosophy and Religion, East and West

4 units, Aut (*Zhao*)

KYOTO

RELIGST 17R. Religion and Japanese Culture

4-5 units, Spr (*Ludvik*)

CENTER FOR RUSSIAN, EAST EUROPEAN AND EURASIAN STUDIES

Emeriti: Terence L. Emmons, Joseph N. Frank, Alex Inkeles, Joseph Van Campen, Henry Rowen, Wayne S. Vucinich

Director: Nancy S. Kollmann (History)

Associate Director: Mary Dakin

Academic Coordinator: Jack Kollmann

Professors: Lazar Fleishman (Slavic Languages), Gregory Freidin (Slavic Languages), David J. Holloway (History, Political Science), Nancy S. Kollmann (History), David Laitin (Political Science), Norman Naimark (History, on leave), Aron Rodrigue (History), Richard D. Schupbach (Slavic Languages), Nancy B. Tuma (Sociology), Steven J. Zipperstein (History)

Associate Professors: Maria Gough (Art History), Monika Greenleaf (Slavic Languages), Michael McFaul (Political Science), Gabriella Safran (Slavic Languages), Amir Weiner (History, on leave)

Assistant Professors: Robert Crews (History), Pavle Levi (Art History), Bissera Pentcheva (Art History)

Courtesy Professors: Coit Blacker (Political Science), Gail Lapidus (Political Science)

Senior Lecturers: Rima Greenhill (Slavic Languages), Katherine Jolluck (History), Geoffrey Rothwell (Economics)

Lecturers: Jasmina Bojic (Humanities), Mary Dakin (Political Science), John Dunlop (International Policy Studies), Jack Kollmann (REEES), Bertrand Patenaude (History), Izaly Zemtsovsky (Music)

Visiting Professors: Oksana Bulgakowa (Slavic Languages), John Connelly (History), Jonathan Haslam (History), Alma Kunanbaeva (Cultural and Social Anthropology), Alan Timberlake (Slavic Languages), Viktor Zhivov (Slavic Languages)

Instructors: Christine Gathmann (Economics), Michael Rouland (History)

Affiliates: Michael Bernstam (Hoover Institution), Robert Conquest (Hoover Institution), Elena Danielson (Hoover Institution), John B. Dunlop (Hoover Institution), Joseph D. Dwyer (Hoover Institution), Bertrand Patenaude (Hoover Institution), Karen Rondstvedt (Stanford Libraries), Kathryn Stoner-Weiss (Stanford Institute for International Studies), Wojciech Zalewski (Stanford Libraries)

Center Offices: Building 40, Main Quad

Mail Code: 94305-2006

Phone: (650) 723-3562

Web Site: <http://CREEES.stanford.edu>

Courses given by the Center for Russian, East European and Eurasian Studies have the subject code REES. For a complete list of subject codes, see Appendix.

The Center for Russian, East European and Eurasian Studies (CREEES) coordinates the University's teaching, research, and extracurricular activities related to the former Soviet Union and Eastern Europe, and administers two interdisciplinary academic programs: an undergraduate minor and an M.A. graduate degree program. Information on center programs and activities is available at <http://CREEES.stanford.edu>. CREEES and its degree programs are directed by the CREEES Steering Committee, composed of faculty members associated with the Center. The programs draw on the strengths of nationally recognized area faculty and research affiliates and significant library and archival collections at Stanford. The Center is a U.S. Department of Education Title VI National Resource Center for Russia and East Europe.

UNDERGRADUATE PROGRAMS MINORS

The minor in Russian, East European, and Eurasian Studies (REEES) is an interdisciplinary area studies program that allows the participating student significant opportunity to select REEES courses in various departments according to his or her interests.

REQUIREMENTS

1. Two core courses: one on Russia/Eurasia, one on Eastern Europe, to be selected by the student from an annual list of qualifying courses issued by CREEES.
2. At least four additional REEES courses, totaling at least 20 units.
3. The student's courses, core and additional, must be distributed among at least three departments. In addition to REEES courses in the departments of History, Political Science, and Slavic Languages and Literatures, REEES courses in Cultural and Social Anthropology, Economics, Sociology, and so on, when offered, may qualify. The CREEES academic coordinator determines which courses qualify for the minor.
4. A capstone experience in REEES, including, but not limited to, one of the following:
 - a) a departmental seminar course for advanced undergraduates
 - b) directed reading and research with a Stanford faculty member or a CREEES-approved resident or visiting scholar
 - c) participation in the Stanford Overseas Studies Program in Moscow.

Foreign Language—The REEES minor has no language requirement, but the participating student is strongly encouraged to attain working competence in Russian or another relevant language. Courses at the third-year level or above in Russian or another language of the former Soviet Union or Eastern Europe (excluding German) may be counted towards the REEES minor, up to a maximum of 3 units per academic quarter, 9 units total.

Additional Information—The total number of courses applied to the REEES minor must be at least six, but the minor should total no more than 36 units. Courses counting towards the REEES minor may not be counted towards the student's major. Courses taken at Stanford overseas campuses (particularly the Moscow campus) may count towards the REEES minor, with the approval in each case of the CREEES academic coordinator; at least three courses for the minor must be taken in residence at Stanford.

Approval of CREEES Academic Coordinator—Students interested in pursuing the REEES minor should consult the CREEES academic coordinator. The minor is declared online using the AXESS system. Students declaring the REEES minor must do so no later than three quarters prior to their intended quarter of degree conferral. Approval of minor declarations and certification of requirements are made by the academic coordinator.

Students pursuing the REEES minor work with the CREEES academic coordinator, who is responsible for determining that requirements for the minor are satisfied.

COTERMINAL BACHELOR'S AND MASTER'S DEGREES

To qualify for a coterminal M.A. degree in Russian, East European, and Eurasian Studies, besides completing University requirements for the B.A. degree, a student must:

1. Submit a coterminal application for admission to the program no later than the quarter prior to the expected completion of the undergraduate degree, normally the Winter Quarter prior to Spring Quarter graduation. Students with advanced placement and transfer credit must apply at least four quarters before the expected master's degree conferral date. Applications may be obtained at <http://registrar.stanford.edu/publications/>. The deadline for all coterminal applications to the M.A. program in Russian, East European and Eurasian Studies is January 11, 2005.

2. Include in the application a program which outlines, by quarter, the schedule of courses the student plans to complete toward the M.A. degree. The student should seek the advice of the CREEES academic coordinator in drafting this schedule. The application also should include: (a) a current Stanford transcript; (b) a one-page statement of purpose; and (c) two letters of recommendation from Stanford professors. Applicants must have a grade point average (GPA) of at least 3.0 (B). Coterminal applicants must take the general test of the Graduate Record Examination and have the results sent to Graduate Admissions, Office of the University Registrar.
3. Complete 15 full-time quarters or the equivalent, or three quarters in full-time residence after completing 180 units; and complete, in addition to the 180 units required for the bachelor's degree, a minimum of 48 units for the master's degree.

The same courses may not be counted to meet both undergraduate and graduate requirements, and no courses taken before the junior year may be used to meet the course requirements for the master's degree. Requirements for completion of the M.A. degree are summarized below; a more detailed description of the program and requirements is available from the center.

SLAVIC THEME HOUSE

Slavianskii Dom, at 650 Mayfield Avenue, is an undergraduate residence which houses 50 students and offers a wide variety of opportunities to expand knowledge, understanding, and appreciation of Russia, the former Soviet Union, and Eastern Europe.

OVERSEAS STUDIES PROGRAMS

Undergraduate students interested in the study of languages, history, culture and social organization of the countries of Russia, Eurasia, and Eastern Europe can apply to study at the Stanford center in Berlin. Participation in these programs is encouraged and easily integrated into the REEES minor. Information about these programs is available at <http://osp.stanford.edu>.

GRADUATE PROGRAMS

MASTER OF ARTS

CREEES offers a one-year intensive interdisciplinary master's degree program in Russian, East European, and Eurasian Studies for students with a strong prior language and area studies background. The program structure allows students the flexibility to pursue their particular academic interests, while providing intellectual cohesion through a required core curriculum that addresses historical and contemporary processes of change in the former Soviet Union and Eastern Europe. This core curriculum consists of three core courses and the REES 200, Core Seminar Series. The program may be taken separately or coterminally with a B.A. degree program. The interdisciplinary M.A. program typically serves three types of students:

1. Those who intend to pursue careers and/or advanced degrees in such fields as business, education, government, journalism, or law, and who wish to establish competence in Russian, East European, and Eurasian studies.
2. Those who intend to apply to a Ph.D. program involving Russian, East European, and Eurasian studies and who need to enhance their academic skills and credentials.
3. Those who are as yet undecided on a career but who wish to continue an interest in Russian, East European, and Eurasian studies.

ADVISING

The advising structure is two-tiered: each M.A. candidate works with the CREEES academic coordinator who advises on the program of course work and monitors the student's progress toward completing the degree. Candidates are also assigned a faculty adviser from the Academic Council faculty, who provides intellectual and academic guidance.

ADMISSION

Applicants are encouraged to apply electronically; see <http://gradadmissions.stanford.edu/> for a link to the electronic application and general information regarding graduate admission, or to request a written application. In addition, prospective applicants are strongly encouraged to consult with the academic coordinator at CREEES regarding the application process.

To qualify for admission to the program, the following apply:

1. Applicants must have earned a B.A. or B.S. degree, or the equivalent.
2. Applicants must have completed at least three years of college-level Russian language study or the equivalent prior to beginning the program. Other languages of Eastern Europe or the former Soviet Union may be accepted on a case-by-case basis.
3. Applicants whose native language is not English are ordinarily expected to take the Test of English as a Foreign Language (TOEFL) and have the results sent to Graduate Admissions, Office of the University Registrar.
4. All applicants must take the General Test of the Graduate Record Examination and have the results sent to Graduate Admissions, Office of the University Registrar.

The deadline for submission of applications for admission and for financial aid is January 11, 2005. Admission is normally granted for Autumn Quarter, but requests for exceptions are considered.

The successful applicant generally demonstrates the following strengths: requisite foreign language study, significant course work in Russian, East European, and Eurasian studies in multiple disciplines, outstanding grades in previous academic work, high GRE scores (particularly verbal and analytical writing), study or work experience in the region, strong letters of recommendation, and a persuasive statement of purpose explaining why and how the program fits the applicant's academic and career goals.

DEGREE REQUIREMENTS

Candidates for the M.A. degree must meet University requirements for an M.A. degree as described in the "Graduate Degrees" section of this bulletin.

The M.A. program in REEES can ordinarily be completed in one academic year by a well-prepared student; longer periods of study are permitted.

Requirements to complete the interdisciplinary M.A. degree are principally ones of distribution, with the exception of three required core courses and a core seminar, as described below. Each student, with the advice of the CREEES academic coordinator, selects courses according to the student's interests, needs, and goals.

All students in the M.A. REEES program must complete a minimum of 48 academic credit units within the following guidelines.

1. *Core Courses*: students must complete three, one quarter core courses. Each year, four to six courses, typically from the History, Political Science, and Slavic Languages and Literatures departments, are designated as M.A. core courses; students may select three of these to meet the core course requirement. Courses selected as core courses examine subject areas of fundamental importance within modern Russian, East European, and Eurasian Studies, and address questions of research, methodology, and current scholarship.
2. *Core seminar 200, Current Issues in Russian, East European, and Eurasian Studies*, is required of all students in the M.A. program for a total of three academic quarters. The goal of this course is to survey current methodological and substantive issues in Russian, East European, and Eurasian studies, acquaint students with Stanford resources and faculty, and present professional development and career options.
3. *Interdisciplinary Course Work*: a minimum of five graduate courses in Russian, East European, and Eurasian studies must be completed and distributed among at least three departments. All course work applied to the 48-unit minimum must deal primarily with Russian/Eurasian or East European studies.
4. *Language Study*: students in the program are expected to study Russian or another language of the former Soviet Union or Eastern Eu-

rope. Credit towards the 48-unit minimum (maximum 3 units per quarter, 9 units total) is allowed for advanced language work; in the case of Russian, “advanced” is defined as third-year Russian language instruction and above. Similar standards apply for other languages.

5. All course work qualifying for the 48-unit minimum (except REES 200) must have a letter grade of ‘B’ or higher. (‘B-’ does not count for degree credit, nor does ‘S’ or ‘CR’.)
6. All courses counting towards the 48-unit minimum must be approved by the CREEES academic coordinator, who ensures that planned course work satisfies requirements towards the degree. The CREEES director and steering committee determine the requirements.

A description of the M.A. program is also available on the web at <http://CREEES.stanford.edu/GraduatePrograms.html> and by request from the Center for Russian, East European and Eurasian Studies.

FINANCIAL AID

Subject to funding, CREEES may have a limited number of Foreign Language and Area Studies (FLAS) fellowships for U.S. citizens or permanent residents. Additional financial aid may also be available from CREEES. Applicants in the M.A. program have priority in the annual FLAS competition; in recent years CREEES has also awarded FLAS fellowships in the Graduate School of Business, the School of Medicine, and the School of Law. Consult the CREEES academic coordinator for further information about the application and award process. Applications for FLAS fellowships can be obtained at <http://CREEES.stanford.edu/FellowshipsGrants.html>.

DOCTORAL PROGRAMS

Since the University does not offer a Ph.D. in Russian, East European, and Eurasian Studies, students wishing to pursue a REEES-related doctoral program must apply to one of the departments offering a Ph.D. with an emphasis on Russia, Eurasia, or Eastern Europe, such as the departments of History, Political Science, or Slavic Languages and Literatures.

COURSES

REES 200. Current Issues in Russian, East European, and Eurasian Studies—Enrollment limited to REEES students. Scholars present analyses of methodologies, challenges, and current issues in the study of Russia, E. Europe, and Eurasia.

1 unit, Aut, Win, Spr (Kollmann)

INTERDEPARTMENTAL OFFERINGS

The courses listed below by department deal at least in part with Russia, the former Soviet Union, or Eastern Europe. See the respective department listings for course descriptions. Additional relevant courses by resident or visiting faculty may be offered; for updated information, consult the quarterly *Time Schedule* or contact the Center for Russian, East European and Eurasian Studies. Students in the area studies M.A. program must have their course list approved each quarter by the Academic Coordinator prior to enrollment.

ART AND ART HISTORY

ARTHIST 106/306. Early Christian and Byzantine Art and Architecture, 300-1453

4 units, Aut (Pentcheva)

ARTHIST 166/366. Aesthetics and Politics in East European Cinema

4 units, Win (Levi)

ARTHIST 410. Aesthetics of the Icon

5 units, Aut (Pentcheva)

CULTURAL AND SOCIAL ANTHROPOLOGY

CASA 171. Mythology, Folklore, and Oral Literature of Central Asia

5 units, Aut (Kunanbaeva)

CASA 173/273. Nomads of Eurasia

4-5 units, Spr (Kunanbaeva)

ECONOMICS

ECON 120. Socialist Economies in Transition

5 units, Spr (Gathmann)

HISTORY

HISTORY 20N. Early Modern European Views of Eastern Europe and Russia

5 units, Spr (Kollmann)

HISTORY 23S. Beyond the Shtetl: Jews and Poles, 1881-1946

5 units, Aut (Plocker)

HISTORY 101D. History of Nuclear Weapons

5 units, Spr (Holloway)

HISTORY 102A. The History of the International System

5 units, Spr (Haslam)

HISTORY 119/319. Aristocracies and Absolutism: Early Modern Eastern Europe, 1400-1800

5 units, Spr (Kollmann)

HISTORY 120B. History of Imperial Russia

5 units, Spr (Crews)

HISTORY 120C. 20th-Century Russian and Soviet History

5 units, Aut (Patenaude)

HISTORY 125/325A. 20th-Century Eastern Europe

5 units, Win (Jolluck)

HISTORY 137/337. The Holocaust

5 units, Win (Rodrigue)

HISTORY 189C. Nationalism, Socialism, and Modern Jewish History

5 units, Aut (J. Frankel)

HISTORY 206B/306B. Design and Methodology for International Field Research

1 unit, Win (N. Kollmann, Roberts)

HISTORY 217/317. Men, Women, and Power in Early Modern Russia, 1500-1800

5 units, Win (N. Kollmann)

HISTORY 217B. The Woman Question in Modern Russia

5 units, Spr (Jolluck)

HISTORY 218. Russia and the West, 1815-1917

5 units, Aut (Patenaude)

HISTORY 220A/320. Violence, Islam, and the State in Central Asia

5 units, Win (Crews)

HISTORY 220B. Central Asia in the 20th Century

4-5 units, Aut (Rouland)

HISTORY 222B/322B. Circles of Hell: Poland in World War II

5 units, Spr (Jolluck)

HISTORY 223A/323A. Cold War Russia

5 units, Spr (Haslam)

HISTORY 225D/325D. East European Women and War in the 20th Century

5 units, Aut (Jolluck)

HISTORY 288B. The History of East European Jews in the Mirror of Literature

5 units, Aut (E. Frankel)

HISTORY 321A. Topics in Early Modern Russian Historiography

5 units, Win (Kollmann)

HISTORY 321B. Imperial Russian Historiography

5 units, Spr (Crews)

HISTORY 322. Readings in Eastern European History

5 units, Win (Connelly)

INTERDISCIPLINARY STUDIES IN HUMANITIES

HUMNTIES 197C. Camera as Witness: A Forum for Global Dialogue

5 units, Spr (*Bojic*)

INTERNATIONAL RELATIONS

INTNLREL 166. Russia and Islam—(Same as IPS 266.)

5 units, Aut (*Dunlop*)

LANGUAGE CENTER

For courses in Russian, Eastern European, and Eurasian language instruction with the subject code SLAVLANG or SPECLANG, see the “Language Center” section of this bulletin.

MUSIC

MUSIC 9A. Tchaikovsky, Stravinsky, Shostakovich, and Beyond: A History of Russian Music

3 units, Spr (*Zemtsovsky*)

POLITICAL SCIENCE

POLISCI 114S. International Security in a Changing World

5 units, Win (*Sagan, Blacker, Perry*)

POLISCI 141R. Russian Politics

5 units, Aut (*Dakin*)

POLISCI 317R. The End of the USSR: Causes and Consequences

5 units, Win (*Lapidus*)

POLISCI 341T. Comparative Democratization and Regime Change

5 units, Aut (*Karl*)

SLAVIC GENERAL

SLAVGEN 77Q. Russia’s Weird Classic: Nikolai Gogol

3 units, Aut (*Fleishman*)

SLAVGEN 122/222. Yiddish Literature

5 units, Spr (*Safran*)

SLAVGEN 133A/233A. Deviating From Dogma: Film in East Europe from 1956 to 1968

4 units, Win (*Bulgakowa*)

SLAVGEN 145/245. The Age of Experiment, 1820-50—(Same as COMPLIT 145S/245S.)

3-4 units, Aut (*Greenleaf*)

SLAVGEN 146/246. The Age of Transgression: The Great Russian Novel

4 units, Win (*Safran*)

SLAVGEN 148/248. The Age of Dissent: A Survey of Russian Literature and Culture, 1953 to the Present

2-4 units, Spr (*Freidin*) alternate years, not given 2005-06

SLAVGEN 151/251. Dostoevsky and His Times—(Same as COMPLIT 151S.)

4 units, Win (*Frank*)

SLAVGEN 156/256. Nabokov and Modernism—(Same as COMPLIT 156D/256D.)

3-5 units, Spr (*Greenleaf*)

SLAVGEN 158/258. Sergei Eisenstein and his Vision of Film Theory

4 units, Win (*Bulgakowa*)

SLAVGEN 165/265. Poetry, Painting, and Music of the Russian Avant Garde

4 units, Win (*Fleishman*)

SLAVGEN 190/290. Tolstoy’s *Anna Karenina* and the Social Thought of its Time—(Same as HUMNTIES 197F.)

5 units, Aut (*Freidin*)

SLAVIC LITERATURE

SLAVLIT 129/229. Poetry as System: Introduction to Theory and Practice of Russian Verse

4 units, Win (*Fleishman*)

SLAVLIT 187/287. Russian Poetry of the 18th and 19th Centuries

3 units, Win (*Fleishman*)

SLAVLIT 189/289. Literature from Old Rus’ and Medieval Russia

4 units, Spr (*Zhivov*)

SLAVLIT 200A. Introduction to Library and Archival Research in Slavic Studies

1-5 units, Aut (*Fleishman*)

SLAVLIT 211. Introduction to Old Church Slavic

3 units, Win (*Timberlake*)

SLAVLIT 212. Old Russian And Old Church Slavic

3 units, Spr (*Timberlake*)

SLAVLIT 213. The Literary Dialogue of Pushkin and Gogol in the Formative Context of the 1830s

2-4 units, Aut (*Greenleaf*)

SLAVLIT 305. Russian Critical Traditions

3-4 units, Aut (*Safran*)

SLAVLIT 310. Civilizing Process: Paradigms of Society and Culture in Modern Russian Literature and Film

2-4 units, Win (*Freidin*)

