

PSYCHOLOGY

Courses offered by the Department of Psychology are listed under the subject code PSYCH on the Stanford Bulletin's ExploreCourses web site.

The department, housed in Jordan Hall, maintains many computer-equipped laboratories and the Stanford Center for Cognitive and Neurobiological Imaging (CNI). 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

- courses designed for the general student
- 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
- an undergraduate minor program
- programs of graduate study and research leading to the degree of Doctor of Philosophy
- a Ph.D. minor

Applications are not accepted for the master's degree except as noted below.

Mission of the Undergraduate Program in Psychology

The mission of the undergraduate program in Psychology is to introduce students to the theories and empirical studies of human behavior. This includes the study of aging, achievement, child development, cognitive processes, conflict, culture, decision making, emotion, group behavior, health, identity, infancy, language, learning and memory, morality, motivation, personality, psychopathology, race, self, social perception, visual perception, and other related topics. The major provides students with knowledge and skills relevant to professional careers in technology, business, counseling, education, public policy, law, and medicine, as well as graduate studies in Psychology.

Learning Outcomes (Undergraduate)

The department expects undergraduate majors in the program to be able to demonstrate the following learning outcomes. These learning outcomes are used in evaluating students and the department's undergraduate program. Students are expected to demonstrate:

1. an understanding of core knowledge within the discipline of psychology including relevant theory and research.
2. the ability to analyze a problem correctly using discipline specific methodology.
3. the ability to draw sound inferences and conclusions from data.
4. the ability to write and communicate ideas clearly.

Learning Outcomes (Graduate)

The purpose of the master's program is to further develop knowledge and skills in Psychology and to prepare students for a professional career or doctoral studies. This is achieved through completion of courses, in the primary field as well as related areas, and experience with independent work and specialization. The master's program is available only to Ph.D. students in Psychology and, under special circumstances, students enrolled in other graduate programs offered through the University.

The Ph.D. is conferred upon candidates who have demonstrated substantial scholarship and the ability to conduct independent research

and analysis in Psychology. Through completion of advanced course work and rigorous skills training, the doctoral program prepares students to make original contributions to the knowledge of Psychology and to disseminate this knowledge.

Bachelor of Arts in Psychology

Major Requirements

Students declaring a major in Psychology must complete a minimum of 70 units of course work in Psychology, 60 of which must be taken in the Psychology department. The remaining 10 units can be taken outside of the Psychology department but must be pre-approved by the student services office or faculty adviser. These courses should represent a coherent thematic focus. One way to achieve this focus is through a field of study. Courses taken to satisfy the 70-unit requirement must be taken for a grade of C- or better (except for courses offered only on a satisfactory/no credit basis). Majors must take PSYCH 1 Introduction to Psychology, and PSYCH 10 Introduction to Statistical Methods: Precalculus. Advanced placement (AP) credit may not be used toward the Psychology major requirements. Beyond these two required courses, students must complete at least five of the following eleven core Psychology courses, with a minimum of two from each area A and B:

		Units
Area A		
PSYCH 30	Introduction to Perception	3
PSYCH 35	Minds and Machines	4
PSYCH 45	Introduction to Learning and Memory	3
PSYCH 50	Introduction to Cognitive Neuroscience	4
Area B		
PSYCH 60	Introduction to Developmental Psychology	3
PSYCH 70	Self and Society: Introduction to Social Psychology	3-4
PSYCH 75	Introduction to Cultural Psychology	5
PSYCH 80	Introduction to Personality and Affective Science	3
PSYCH 90	Introduction to Clinical Psychology	3
PSYCH 95	Introduction to Abnormal Psychology	3

Students must take one Writing in the Major (WIM) course 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 research, independent study, and practica (including but not limited to PSYCH 194 Reading and Special Work, PSYCH 195 Special Laboratory Projects, PSYCH 281 Practicum in Teaching) toward the Psychology major. Students who are teaching assistants for a Psychology course or are enrolled in the senior honors program are allowed up to 15 units in independent study and research. Any units beyond the limit of 10 or 15 may be counted toward the 180 units required for graduation.

Students who are double majoring or completing a minor degree in another department may not overlap (double-count) courses, unless the overlapping courses constitute introductory skill requirements, such as PSYCH 10 Introduction to Statistical Methods: Precalculus. In this instance, while the course requirement would be satisfied, the units for the course can only be applied to one program of study, not both. Consult the student services office for further clarification.

Summer Quarter Psychology courses are not equivalent to courses given during the regular academic year and, while applicable toward the 70 units needed for the major, may not be used to fulfill core course requirements. Therefore, PSYCH 1, PSYCH 10, and the Area A and B courses cannot be taken during Summer Quarter to fulfill the major requirements. 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 that goes beyond the minimal requirements listed above:

1. Within the general major, the student may take advanced undergraduate or graduate courses (although some require the consent of the instructor), 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 of study: 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 technology, business, counseling, education, law, public policy or medicine.

Credit from Outside the Department

Psychology majors must complete at least 60 units of course work toward their major at Stanford within the Psychology department. Psychology majors may count no more than a total of 10 units credit from outside the department toward the major. Both majors and minors, under extenuating circumstances, may use one course from outside the department to fulfill core course requirements. Additional courses may be used to fulfill the 70-unit major requirement, but may not be counted as core courses. Please see the student services office for further clarification.

Petition for transfer of credit is rarely granted. In cases where petitioning is necessary, there are two types of credit from outside the department: external transfer credit for courses taken at institutions other than Stanford and credit for courses in other Stanford departments. A student must have already declared Psychology as a major or minor in order to submit a petition for transfer credit. Stanford credit for courses completed at other institutions must have been granted by the External Credit Evaluation section of the Registrar's Office; those units may be applied toward the 180 units required for graduation. To have credit from outside the department evaluated to fulfill requirements toward the Psychology major or minor, students must complete an Undergraduate Petition form, available from the student services office, and submit it with a course syllabus. Students requesting external transfer credit must also submit a copy of the signed transcript from the External Credit Evaluation section of the Registrar's Office showing the number of Stanford units granted for the course. The Psychology department then evaluates external credit courses and courses from other Stanford departments to determine if they can be applied toward Psychology major or minor requirements.

Specialization Tracks

Students in the major program, including those in the senior honors program, may elect to specialize in one of four specialization tracks:

- Cognitive Sciences
- Health and Development
- Mind, Culture, and Society
- Neuroscience

These 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. Specialization in one of the tracks can facilitate preparation for a professional career as well as for graduate work in Psychology.

Participation in a specialization 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 or four courses in related disciplines. Psychology courses completed for the track count toward satisfying the major requirements. Courses from other departments listed for the track may count toward the 10 outside units for the major requirement, but must be pre-approved by the student services office or faculty adviser.

These specialization tracks are declared on Axxess upon approval of faculty adviser. They appear on the transcript but not on the diploma.

Honors Program

The senior honors program is designed for exceptional 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:

- excellent academic performance
- previous research experience
- two letters of recommendation by faculty and/or graduate students

Applications are available in April and are to be submitted to the department's student services office with a current transcript and recommendations 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. Typically, students work in their honor thesis adviser's lab for at least one quarter. 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, counseling education, law, public policy and medicine.

During Autumn Quarter of their senior year, honors program students participate in a weekly seminar and meet with their advisers to develop their experimental program and begin data collection. Winter and Spring Quarters are devoted to completing the research, analyzing the data, and writing the thesis, which is submitted mid-May. Students give oral presentations of their projects at the annual Honors Convention. This convention is attended by undergraduates, graduate students, and faculty.

Minor in Psychology

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.

Degree Requirements

Completion of a minimum of 35 units in Psychology is required for the minor, including PSYCH 1 Introduction to Psychology and PSYCH 10 Introduction to Statistical Methods: Precalculus, or a comparable statistics course. Advanced placement (AP) credit may not 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 and elective Psychology courses of at least three units each, totaling 35 units:

Area A

Select a minimum of one of the following:

PSYCH 30	Introduction to Perception
PSYCH 35	Minds and Machines
PSYCH 45	Introduction to Learning and Memory
PSYCH 50	Introduction to Cognitive Neuroscience

Area B

Select a minimum of one of the following:

PSYCH 60	Introduction to Developmental Psychology
PSYCH 70	Self and Society: Introduction to Social Psychology
PSYCH 75	Introduction to Cultural Psychology
PSYCH 80	Introduction to Personality and Affective Science
PSYCH 90	Introduction to Clinical Psychology
PSYCH 95	Introduction to Abnormal Psychology

Elective Psychology Courses

Students who declared a Psychology minor prior to the 2005-06 academic year may choose to complete seven total courses:

		Units
PSYCH 1	Introduction to Psychology	5
PSYCH 10	Introduction to Statistical Methods: Precalculus	5

Three core courses

Two elective courses

Independent study, research, and practica cannot be counted toward the minor. Summer Quarter Psychology courses are not applicable toward the 35 units needed for the minor.

All courses used to fulfill the requirements of the minor must be passed with a grade of C- or better, except for courses offered only on a satisfactory/no credit basis.

Master of Arts in Psychology

The Department of Psychology offers a master of arts degree only to students concurrently enrolled in other Stanford graduate programs.

A master of arts degree is available to students enrolled in the Department's Ph.D. program. For such students, the requirements of the M.A. degree are listed in the "Doctoral" tab of this section.

In exceptional cases, students concurrently enrolled in another doctoral or professional program at Stanford may also apply for the M.A. degree. In such cases, the applicable admissions and degree requirements are determined on a case by case basis. Such applicants should consult with the student services office in the Department of Psychology.

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 (<http://exploreddegrees.stanford.edu/graduatedegrees>)" section of this bulletin.

Coterminal Master's Program

The Psychology department no longer offers a coterminal master's program. Students who were admitted to the coterminal program

in earlier years should refer to the Bulletin of their entering year for applicable policy information.

Units Doctor of Philosophy in Psychology

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 general Graduate Record Examination as part of the application.

General University requirements for the Ph.D. are described in the "Graduate Degrees (<http://www.stanford.edu/dept/registrar/bulletin/4901.htm>)" 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 should take PSYCH 207 Professional Seminar for First-Year Ph.D. Graduate Students, at least one approved graduate statistics course, and at least two core courses from the following list:

		Units
PSYCH 202	Cognitive Neuroscience	3
PSYCH 205	Foundations of Cognition	1-3
PSYCH 211	Developmental Psychology	1-3
PSYCH 212	Classic and contemporary social psychology research	1-3
or PSYCH 215	Mind, Culture, and Society	
PSYCH 213	Affective Science	3

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., 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.

Second-Year Course Requirements

By the end of the second year of graduate study, the student should complete at least one additional core course for a total of three taken from the list above, and take a second approved graduate course in statistics as well as other courses contributing toward completion of the advanced course or minor requirement described below.

Optional Application for Conferral of the M. A. Degree: Graduate students, who have completed (a) the first-year and second-year course requirements, and (b) at least 45 units of Psychology courses, may apply for conferral of the M.A. degree. This application should be discussed with the Student Services office in the Department of Psychology.

Third-Year and Beyond

By the end of the third year the student should complete all of the required core courses listed above and should be well on the way toward completion of the advanced course or minor requirement.

Students are expected to form a research committee, which must include the dissertation reading committee, before the initiation of the dissertation research. The research committee includes the dissertation adviser and consists of at least three faculty members, at least two of

whom should have primary appointments in the Psychology department. For University guidelines for the composition of the dissertation reading committee, see the "Graduate Degrees (<http://www.stanford.edu/dept/registrar/bulletin/4901.htm>)" section of this bulletin.

The research committee should meet no later than the last day of classes of Spring Quarter of the third year, and determines the timeline for further development of the dissertation research project. Subsequent meetings are triggered by the completion of one of two documents: a dissertation proposal (DP) or a conceptual analysis of the dissertation area (CADA). The timing and sequencing of the DP and CADA are developed by the student in consultation with the committee. As a general guide, one of the two preliminary elements (CADA or DP) should be completed by the end of the third Summer Quarter and the second should be completed by the end of the fourth Spring Quarter. Students are free to alter the membership of the committee at any time during the process, subject to consultation with the adviser.

The DP should be a description of the proposed research. The CADA provides a framework for the research topic of the dissertation, addresses the central issues within the specialty area, and reviews the pertinent literature.

Advanced Course or Minor Requirements

The candidate must complete 12 units of advanced graduate course work or a Ph.D. minor in another department. If a student waives the minor requirement in favor of the 12 advanced units, the student must fulfill the advanced course requirement by taking (a) non-core graduate courses, and/or (b) graduate-level courses in other departments comparable in quality to Psychology's graduate courses. If there is any question about comparability, the student should consult the adviser, student services, and, in some cases, the graduate program committee chair before taking the course.

Orals

The candidate must pass the University oral examination, which also serves as a dissertation defense. A committee is formed to review the oral examination, including the dissertation reading committee, an additional faculty member, and one oral examination committee chair from outside the Psychology department. The oral examination consists of a 40-45-minute presentation to the department of the completed dissertation research. Parents and friends are welcome to attend. Following the presentation, the student and the committee convene for a discussion of the dissertation and the presentation.

Dissertation Requirements

The candidate must complete a dissertation satisfactory to the dissertation reading committee prior to the oral examination. Minor revisions to formatting may be made after the oral examination.

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

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. If the student fulfills the academic promise displayed upon entrance, he or she is invited to continue working towards 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 and Beyond Evaluation: A similar evaluation is conducted at the end of each year of graduate training involving the same criteria as the first year; however, the student is not required to submit a paper. Students who are not making satisfactory progress may be dropped from the program.

The Doctoral Training Program

As indicated by the requirements described above, a student concentrates 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 subjects 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 takes no more than 10 units of course work per quarter. For further information please contact the student services office and the department graduate guide.

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 at least five Psychology courses during their graduate study. Of these five teaching occasions, two must involve PSYCH 1, or either two Statistics courses (i.e., PSYCH 10, PSYCH 252, PSYCH 253, and PSYCH 254), or one Statistics course and one other course the department may designate as a service course.

		Units
PSYCH 1	Introduction to Psychology	5
or PSYCH 10	Introduction to Statistical Methods: Precalculus	
PSYCH 252	Statistical Methods for Behavioral and Social Sciences	1-6
or PSYCH 253	Statistical Theory, Models, and Methodology	
or PSYCH 251	Lab in Experimental Methods	

Students are discouraged from participating in teaching during the first year of graduate study. However, all first and second year students are strongly encouraged to attend a one-day TA Training Workshop offered in September before the autumn quarter. 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.

Psychology Colloquium

The Psychology Colloquium meets on most Wednesday afternoons at 3:45 p.m. Speakers from Stanford and other institutions present topics of current interest. Graduate students are expected to attend. Additional announcements may be found at the Colloquium Schedule (<http://www.stanford.edu/dept/psychology/colloquium>) web site.

Ph.D. Minor in Psychology

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 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 credit/no credit basis.

Emeriti: (Professors) Albert Bandura, Gordon H. Bower, Herbert H. Clark, John H. Flavell, Leonard M. Horowitz, Mark R. Lepper, Eleanor Maccoby, Roger N. Shepard, Claude M. Steele, Ewart A. C. Thomas, Barbara Tversky, Philip G. Zimbardo

Chair: Ian H. Gotlib

Professors: Laura L. Carstensen, Geoffrey Cohen, Carol Dweck, Jennifer L. Eberhardt, Ian H. Gotlib, Kalanit Grill-Spector, James J. Gross, Brian Knutson, Ellen M. Markman, Hazel R. Markus, James L. McClelland, Dale Miller, Benoit Monin, Russell A. Poldrack, Lee D. Ross, Jeanne L. Tsai, Anthony D. Wagner, Brian Wandell, Jeffrey J. Wine

Professor (Research): Anthony Norcia

Associate Professors: Anne Fernald, Michael C. Frank, Noah Goodman, Gregory M. Walton

Associate Professor (Teaching): Catherine Heaney

Assistant Professors: Alia Crum, Justin Gardner, Hyowon Gweon, Steven Roberts, Daniel Yamins, Jamil Zaki

Lecturers: Parul Chandra, Amie Haas, Mary Peck Peters, Jennifer Winters, Beth Wise

Courtesy Professors: William C. Dement, Gary H. Glover, Jon Krosnick, Fei-Fei Li, Tanya Luhrmann, Robert MacCoun, Bruce McCandliss, William T. Newsome, Robb Willer