
 Department of
Psychology

 Courses of Study:
 Major (BA)
 Master of Arts
 Doctor of Philosophy

Objectives
Undergraduate Major

The main objective of the psychology major is to help students develop a solid background in the scientific method and a strong foundation in the fundamentals of psychology, making them highly competitive candidates for postgraduate study and also preparing them to be thoughtful, analytic, and discerning problem solvers. These features of the undergraduate program also make Brandeis psychology graduates especially attractive to employers in the mental health and business professions. Recent psychology majors have gone on to graduate work in clinical, applied, and scientific research areas of the field. Given the broad training in quantitative and research skills, psychology students are sought after in a wide range of professional areas including marketing and consulting, government and public policy, and social and mental health services. Many of our graduates go on to graduate school in law, business, medicine, public health, speech pathology, and social work, as well as psychology. Our faculty conduct research in diverse areas that include cognitive neuroscience, normal and abnormal development, social interaction, spatial orientation, perception, memory, emotion, life-span development, and effects of brain damage.

Graduate Programs in Psychology

The Department of Psychology offers a PhD and an MA program. There are two general areas of training within the PhD program: cognitive neuroscience and social developmental psychology. The goal of the PhD program is to develop excellent researchers and teachers who will become leaders in psychological science. From the start of graduate study, research activity is emphasized. The program helps students develop an area of research specialization and gives them opportunities to work in their chosen area of training: social developmental psychology or cognitive neuroscience. In both areas, dissertation supervisors are leaders in the field and pursue research in the following: motor control, visual perception, taste physiology and psychophysics, memory, learning, aging, child development, aggression, emotion, personality and cognition in adulthood and old age, social relations and health, stereotypes, and face perception.

Faculty
Margie Lachman, Chair

Life-span development and aging. Adult personality and cognition.

Joseph Cunningham

Emotional development and nonverbal communication. Clinical psychology.

Paul DiZio, Graduate Advising Head

Human spatial orientation and motor control.

József Fiser

Visual information processing.

Maurice Hershenson

Visual space perception. Visual information processing.

Derek Isaacowitz

Emotion and aging.

Donald Katz

Neural dynamics of gustatory perception and learning.

Raymond Knight

Clinical psychology. Experimental and developmental psychopathology.

How to Become a Major

Psychology majors study varied aspects of basic and applied research areas in the field. There are many opportunities for undergraduate involvement and experiential learning. The department has an active Psychology Club and chapter of the Psi Chi National Honor Society. A number of students write honors theses each year, while many more conduct independent study, research, or reading projects, some of which are funded by undergraduate research program grants. The clinical psychology practicum at Brandeis enables students to spend one day per week working in a mental health facility.

Each psychology major is assigned a faculty advisor from whom general advice about courses or career plans can be obtained. In addition, the psychology undergraduate advising head is available for consultation even before students declare psychology as a major. To start the major, PSYC 1a should be taken no later than the sophomore year. We strongly encourage majors to take PSYC 51a (Statistics) and PSYC 52a (Research Methods and Laboratory in Psychology) in their sophomore year and no later than their junior year. Both of these courses require advance registration with the department two weeks prior to the university's preregistration period. Many of the advanced seminars require these two courses as prerequisites.

We encourage students who wish to do senior honors research to get involved in a faculty laboratory as early as possible. More information about the honors program is available on the psychology department's Web site.

How to Be Admitted to the Graduate Program

The general requirements for admission to the Graduate School, as specified in an earlier section of this *Bulletin*, apply to candidates for admission to this area of study.

An undergraduate major in psychology is not required. Students with inadequate preparation may make up their deficiencies during their first year but without residence credit. Students are admitted on a competitive basis, which includes evaluation of previous academic records, recommendations, previous research experience, and results of the Graduate Record Examination (Aptitudes and Psychology Achievement Tests).

There are two areas of interest in the psychology department graduate program, cognitive neuroscience and social developmental. Applicants to the program should cite their area of interest on the application form.

James Lackner

Spatial orientation. Human movement control. Adaptation to unusual force environments.

Xiaodong Liu

Multivariate statistics. Educational evaluation and measurement.

Andrew Molinsky

Organizational behavior.

Robert Sekuler

Visual perception. Cognitive processes.

Patricia Tun

Aging and speech comprehension and memory.

Malcolm Watson, Undergraduate Advising Head

Developmental psychology. Aggression.

Arthur Wingfield

Human memory.

Jerome Wodinsky

Comparative psychology. Learning theory. Sensory physiology.

Leslie Zebrowitz

Social psychology. Person perception.

Requirements for the Major

A. Eleven courses are required for the major; all courses that count toward the major must have a grade of C- or better.

B. PSYC 1a (Introduction to Psychology)

C. Four content courses: two from Group I and two from Group II:

Group I: Perception, Cognition, and Neuroscience
NPSY 11b (Behavioral Neuroscience), NPSY 12a (Sensory Processes), PSYC 13b (Perception), PSYC 14a (Comparative Psychology), PSYC 15a (Biological Basis of Motivation), NPSY 16a (Motor Control, formerly NPSY 127a), PSYC 21a (Learning and Behavior), or NPSY 22b (Cognitive Neuroscience).

Group II: Social and Developmental
PSYC 31a (Personality), PSYC 32a (Abnormal Psychology), PSYC 33a (Developmental Psychology), PSYC 34b (Social Psychology), PSYC 36b (Adolescence and Transition to Maturity), PSYC 37a (Adult Development and Aging, formerly PSYC 101b), or PSYC 38a (Health Psychology, formerly PSYC 131b).

D. Two Quantitative Courses. All students must take PSYC 51a (Statistics), plus one of the following: PSYC 193b (Tests and Measurements), MATH 10a or MATH 10b (Techniques of Calculus), MATH 15a (Applied Linear Algebra), PSYC 210a (Advanced Psychological Statistics), or COSI 11a (Programming in Java and C). Note: MATH 36b (Mathematical Statistics) or ECON 83a (Statistics for Economic Analysis) may be taken in place of PSYC 51a.

E. Two Research Science Courses. All students must take PSYC 52a (Research Methods and Laboratory in Psychology). The second course may be selected from any of the following: CHEM 11a, 11b, CHEM 15a, 15b; PHYS 10a, 10b, PHYS 11a, 11b; BIOL 22a (note the corresponding lab is not required for these chemistry, physics or biology courses) OR from the following **advanced research courses** in the psychology department: PSYC 93a, (Independent Research in Psychological Sciences), PSYC 99d (Senior Research in Psychology), or a seminar that has been designated as research intensive (meaning that it involves a significant independent research component).

PSYC 51a (Statistics) is a prerequisite for PSYC 52a and all advanced research intensive courses. PSYC 52a (Research Methods) is a prerequisite for all research-intensive courses. Any seminar used to meet the research science requirement cannot also be counted toward the advanced seminar requirement. Courses that satisfy the research intensive requirements are: NPSY 120b, PSYC 130b, PSYC 133a, PSYC 135b, PSYC 136b, PSYC 145b, PSYC 160b, PSYC 169b, NPSY 174b, NPSY 175b, and PSYC 253a.

F. Two Advanced Seminars (courses 100-level or above). Neither of these advanced seminars can be used to count for the quantitative or the research science requirement. PSYC 161a and 161b (Clinical Psychology Practicum I and II) count only as one course.

Note: The major requires eleven courses in total and a minimum of nine PSYC or NPSY courses. A maximum of two AP exams, with acceptable scores, in the following subjects can be used toward the requirements for the major: biology, chemistry, computer science, mathematics, physics, psychology, and statistics.

Special Note for Majors

The new set of requirements, as outlined above, will take effect with the class entering Brandeis in fall 2007 and classes thereafter. However, current students who started at Brandeis prior to fall 2007 have the option of choosing to meet the old requirements, as stated in the *Bulletin* published the year of entry into Brandeis, or the new requirements, outlined above. Each student must choose one set of requirements or the other, and will not be allowed to mix and combine the requirements. While the new requirements will provide more flexibility and options for most students, they also add another course requirement. In addition, most current psychology majors, especially those in the junior class, have already fulfilled many of the requirements for the old set (e.g., MATH 10a, a lab science course, courses in the three groups). If you are in this situation, it will likely be to your advantage to choose to stay with the old requirements. Likewise, for students who have not yet met many of the course requirements for the major (i.e., those who are currently first-year students and most sophomores), it will likely be to your advantage to choose to follow the new requirements.

Requirements for the Degree of Master of Arts

The Department of Psychology offers a terminal master of arts degree program in general psychology. The MA program provides students with an understanding of the scientific foundations of psychology, as well as direct experience in research methods. Students may enroll in the program on a full-time or part-time basis. Full-time students are expected to complete the degree in one year. Students desiring to continue their studies toward the PhD must apply for admission to that program. Please note that application to and acceptance into the MA program and application to and acceptance into the PhD program are separate and independent of each other.

Course Requirements

Successful completion of eight courses is required for the degree. Students are required to take two semesters of Advanced Psychological Statistics, one semester of Research Methodology, and the Master's Project Readings course that culminates in a master's thesis involving an empirical research project or a comprehensive literature review. Students are also required to choose four courses from two elective groups: the cognitive neuroscience group and the social developmental group. A minimum of one course per group must be taken. If only one course is taken from the social developmental group, it must be the Proseminar in Social Developmental Psychology. Students are also strongly encouraged to register for and attend the Social Developmental Research Seminar (PSYC 316a) both semester or to engage in an equivalent activity in the area of cognitive neuroscience.

Requirements for the Joint Degree of Master of Arts in Psychology & Women's and Gender Studies

Interested students must first be admitted to the PhD program.

- A. PSYC 211a (Graduate Research Methods in Psychology).
- B. PSYC 210a and b (Advanced Psychological Statistics I and II).
- C. PSYC 300a and 302a (Proseminar in Social Developmental Psychology I and II).
- D. A course in PSYC 220–0240 series with successful completion of first-year research project in psychology. This project must be on an issue relevant to women's and gender studies.
- E. A course in feminist research methodologies (WMGS 198a, the Feminist Inquiry course offered through the Graduate Consortium in Women's Studies, or an alternate).
- F. One additional course from 100-level courses in psychology.
- G. WMGS 205a or another designated graduate foundational course in women's and gender studies.
- H. Two elective courses in women's and gender studies.
- I. Participation in a fall semester noncredit Women's and Gender Studies Graduate Proseminar.
- J. Completion of a master's research paper of professional quality and length (normally twenty-five to forty pages) on a topic related to the joint degree. The paper will be read by two faculty members, one of whom is a member of the psychology department and one of whom is a member of the women's and gender studies core or affiliate faculty.

Requirements for the Degree of Doctor of Philosophy

Program of Study

Although there is a three-year minimum residency requirement, four years of full-time graduate study are usually required for the PhD. The *Graduate Handbook* specifies the most complete, up-to-date program requirements.

Research

Each student shall devote one-quarter of his/her time to research during the first term of the entering year. For all subsequent terms, students shall devote a minimum of one-half time to research.

Research Reports and Specialty Exam

Social Developmental Program in Psychology: Students will submit reports on their research for the first year, in journal form, by the beginning of the third term. The second project will be submitted by the beginning of the fifth term. Satisfactory completion of the research projects is required for continuation in the program. Students who have satisfactorily completed the research requirements will be permitted to continue their work toward the doctorate with no formal requirement of a master's degree. During the student's third year, he or she will be examined in the historical, theoretical, and empirical literature related to his or her area of specialization, broadly conceived. The chair of the program, in consultation with the student and advisor, will appoint a three-member committee to administer the specialty examination. The examination includes both a written and an oral portion.

Cognitive Neuroscience Program in Psychology: First-year students will submit rotation reports on their research in journal form by the last scheduled day of class of each semester. The third report will be submitted by January 14 of the second year. Students who have satisfactorily completed the research requirements will be permitted to continue their work toward the doctorate with no formal requirement of a master's degree. Third-year students will be required to submit a dissertation proposal by January 14 of their third year. An oral examination of the dissertation proposal will be scheduled within one month of submission of the written proposal.

Course Requirements

Entering PhD students will take PSYC 210a and two advanced courses in the first term of residence (for social developmental students, one of these courses will be PSYC 211a if not taken prior to entering the graduate program). In the second term, first-year students will take PSYC 210b and one advanced course (for social developmental students, this will be PSYC 300a/302a, if not taken in the fall). Students will take two advanced courses each term in the second year and one each term thereafter until completion of the specialty exam (social developmental students) or dissertation proposal (cognitive neuroscience students). During residency, all social developmental students are required to register and attend PSYC 316a.

Advanced courses should be selected in consultation with the student's advisor. Each term a student must take at least one graduate-level course or seminar (100-level or above) that is not an independent readings or research course. Only selected 100-level courses, determined by the psychology program, will count as advanced, graduate-level courses. Graduate-level course selection will not be restricted to the psychology program but will be arranged by the student in consultation with the faculty advisor.

Breadth Requirement

All graduate students must demonstrate breadth in the field of psychology. This breadth requirement is fulfilled by demonstrating competence in at least six of the nine areas listed below. The requirements may be satisfied in any of three ways:

- A. By having completed an undergraduate or graduate course in that area.
- B. By completing an undergraduate or graduate course offered in that area at Brandeis.
- C. By successfully passing the equivalent of any undergraduate final examination for that course.

Of the six courses, a minimum of two must be taken from areas in Group A and a minimum of two from Group B.

Group A

1. Physiological/Sensory Processes
2. Perception
3. Learning/Comparative
4. Cognition/Memory
5. Cognitive Science

Group B

1. Developmental
2. Social
3. Personality
4. Abnormal

Teaching Fellow Requirement

As an integral part of the graduate training program, the student is required to serve as a teaching fellow each semester until passing the specialty examination or dissertation proposal, with the exception of the first semester. All teaching fellows work closely with course instructors and receive guidance in all aspects of course preparation, teaching, and grading. Through exposure to different professors' styles, varied course formats, and presentations on teaching skills throughout their graduate training, teaching fellows come away with a wide range of experiences, providing them with invaluable preparation for academic positions.

Language Requirement

There is no foreign language requirement.

Dissertation and Defense

Following the completion of the specialty examinations (for social/development students only) and all research reports, the student will prepare a prospectus of the proposed dissertation study in consultation with a faculty dissertation advisor. The proposal may be based on the student's preliminary research. Upon approval by the faculty of the program, a dissertation committee of three or more members will be appointed by the program chair, including the dissertation advisor as chair of the committee. The dissertation advisor will be responsible for advising the student throughout the performance of his or her work, in consultation with the remaining members of the committee at appropriate times in the course of the work. From time to time, the committee will report the student's progress to the program faculty.

The dissertation should provide evidence of originality, scholarship, and research ability. It should be a contribution to knowledge, ordinarily an experimental investigation, but not necessarily so. Upon submission to the chair of the program a copy of the dissertation, signed by all members of the dissertation committee and one member from outside of the department or the university, and a successful defense of the dissertation before all members of the program, the award of the PhD will be recommended to the Faculty Council of the Graduate School.

Special Note for PhD Candidates Earning an MA

Students in the PhD program may petition for a nonterminal master's degree upon completion of the following requirements: (1) one-year minimum residency, (2) acceptable master's thesis (an acceptable first-year research report for social developmental students or an acceptable third report for cognitive neuroscience students will count as a master's thesis), and (3) completed breadth requirements.

Courses of Instruction**(1–99) Primarily for Undergraduate Students****PSYC 1a Introduction to Psychology**

[ss]

A survey of contemporary scientific psychology. Topics include brain and behavior, perception, learning, cognitive processes, plasticity, intelligence, child and adult development, personality, social behavior, and the relationship between normal and abnormal behavior. Usually offered every semester.

Mr. Sekuler and Staff

NPSY 11b Introduction to Behavioral Neuroscience

[sn ss]

Prerequisite: PSYC 1a or MATH 10a or permission of the instructor. This course may not be repeated for credit by students who have taken PSYC 11b in previous years.

Data and theories regarding current conceptions of brain-behavior relationships. Begins with an introduction to neural systems as classically defined (sensory, association, motor, autonomic), and moves on to examination of the biological underpinnings of various behaviors, from those relating to basic drives (reproduction, feeding) to those with a cognitive flavor. Throughout, the accent is on interactions between organisms and environment (learning). Usually offered every year.

Mr. Katz

NPSY 12a Sensory Processes

[sn ss]

Prerequisite: Sophomore standing or MATH 10a or permission of the instructor. Examines the human senses, emphasizing sight and hearing, studied from standpoints of anatomy, physiology, and psychophysics. Insights from the study of special observers including developmentally immature humans, members of nonhuman species, and people with abnormal sensory systems. Usually offered every year.

Mr. Sekuler

PSYC 13b Perception

[ss]

Prerequisite: PSYC 1a. Open to sophomores, juniors, and seniors.

A survey of the field including topics such as visual directions, stereoscopic vision, monocular size-distance and shape-slant perception, perception of motion and movement. Usually offered every semester.

Mr. Hershenson

PSYC 14a Comparative Psychology

[ss]

Prerequisite: PSYC 1a.

The analysis of the behavior of organisms from a comparative and evolutionary perspective, considering genetic, humoral, sensory, and experiential factors in the control of behavior. Usually offered every year.

Mr. Wodinsky

PSYC 15a Biological Bases of Motivation

[ss]

Prerequisite: PSYC 1a.

Topics include hunger, thirst, migration, and sexual behavior. Evidence from biology, neurophysiology, and endocrinology is evaluated. Usually offered every year.

Mr. Wodinsky

NPSY 16a Motor Control

[sn ss]

Prerequisites: PSYC 1a and MATH 10a, or permission of the instructor. This course may not be taken for credit by students who have previously taken NPSY 127a.

Surveys control of vertebrate posture and movement from various perspectives including muscle properties, reflex organization, central pattern generation, spatial representations, learning, and development. Emphasizes research in physiology, psychology, biomechanics, and computational theory. Usually offered every second year.

Mr. DiZio

PSYC 21a Learning and Behavior

[ss]

Prerequisite: PSYC 1a.

Current theories of learning will be explored in the light of experimental evidence derived from animal roles. Usually offered every year.

Mr. Wodinsky

NPSY 22b Introduction to Cognitive Neuroscience

[sn ss]

Prerequisites: PSYC 1a or MATH 10a and sophomore standing in psychology or neuroscience.

Cognitive factors in sensory processes, attention, memory, motor control, plasticity, and language. Experimental and neuroimaging approaches are emphasized. Usually offered every year.

Mr. Sekuler and Staff

PSYC 31a Personality

[ss]

Prerequisite: PSYC 1a.

Covers major personality theories and related research. Emphasis will be on application of theory, issues in personality assessment, and personality development across the life span. Usually offered every year.

Ms. Lachman and Staff

PSYC 32a Abnormal Psychology

[ss]

Prerequisite: PSYC 1a.

A general introduction to psychopathology. Various theoretical models will be discussed. The techniques and findings of research, clinical, and experimental psychology will be emphasized. Usually offered every year.

Mr. Knight

PSYC 33a Developmental Psychology

[ss]

Prerequisite: PSYC 1a.

An examination of normal child development from conception through adolescence. Emphasis is given to theoretical issues and processes of development with an emphasis on how biological and environmental influences interact. Usually offered every year.

Mr. Watson

PSYC 34b Social Psychology

[ss]

Prerequisite: PSYC 1a.

An introduction to theory and research on the psychological processes that relate the individual to the larger social world in terms of behaviors, thoughts, and feelings. Topics include attitudes, social perception, prejudice and discrimination, attraction, behavior in groups, and the role of culture. Usually offered every year.

Mr. Isaacowitz

PSYC 36b Adolescence and the Transition to Maturity

[ss wi]

Prerequisite: PSYC 1a.

Examines the core issues (identity, intimacy, sexuality, spirituality, etc.) that define development during adolescence. Heavy emphasis is placed on the integration of research and theory in understanding adolescence. Usually offered every year.

Staff

PSYC 37a The Psychology of Adult Development and Aging

[ss]

This course may not be taken for credit by students who have previously taken PSYC 101b.

Describes the sensory, cognitive, personality, and social changes that occur in normal aging. Emphasis on pathways to successful aging in the context of a shifting balance of gains and losses in psychological and physical functioning. Usually offered every year.

Mr. Isaacowitz and Ms. Lachman

PSYC 38a Health Psychology

[ss wi]

Prerequisite: PSYC 1a. This course may not be taken for credit by students who have previously taken PSYC 131b.

An examination of the social and psychological factors important for well-being, physical health, and effective medical care. Psychological perspectives are applied to such topics as health promotion and compromise, the stress-illness relationship, social relations, chronic illness, death and dying, and health care provider and patient interactions. Usually offered every second year.

Staff

PSYC 51a Statistics

[ss qr]

Prerequisite: PSYC 1a or the permission of the instructor. Students must consult with the department one semester before anticipated enrollment. This course normally should be completed by the end of the sophomore year.

Covers the fundamentals of descriptive and inferential statistics. Techniques useful in the behavioral sciences will be emphasized. Students learn the theory of statistical decisions, practical application of statistical software, and how to analyze journal articles. Usually offered every semester.

Mr. DiZio and Mr. Fiser

PSYC 52a Research Methods and Laboratory in Psychology

[qr ss wi]

Prerequisites: PSYC 1a and 51a. In order to pre-enroll in this course, students must consult with the department one semester before anticipated enrollment. This course normally should be completed by the end of the sophomore year. Refer to the Schedule of Classes each semester for information regarding applicability to the writing intensive requirement.

The laboratory/lecture offers supervised practice in experimental design, data analysis and interpretation, and formal presentation of experimental results. Usually offered every semester.

Staff

PSYC 92a Internship and Analysis in Psychology

Provides an opportunity for the student to supplement an off-campus internship experience with a related academic project. The specific requirements of the research component are negotiated by the student and the sponsoring faculty member. Usually offered every year.

Staff

PSYC 93a Independent Research in Psychological Sciences

Supervised research experience in a psychology laboratory environment, culminating in a research proposal or report. Usually offered every year.

Staff

PSYC 98a Readings in Psychological Literature

Usually offered every year.

Staff

PSYC 98b Readings in Psychological Literature

Usually offered every year.

Staff

PSYC 99d Senior Research

Usually offered every year.

Staff

(100–199) For Both Undergraduate and Graduate Students**NPSY 120b Man in Space**

[sn ss]

Prerequisite: PHYS 10a and PSYC 52.

Topics include how orbital flight is achieved, spacecraft life support systems, circulatory dynamics, sensory-motor control and vestibular function in free fall, the physiological and psychological adaptations necessary in space flight, and how astronauts must readapt on return to Earth. Usually offered every year.

Mr. Lackner

PSYC 122a The Science of Happiness

[ss]

Prerequisite: PSYC 52a.

Examines the current empirical research on defining constructs of happiness, their evolutionary roots, the taxonomy of positive emotion, as well as interventions that increase the experience of positive emotions. A background in research methods is required. Special one-time offering.

Ms. Wadlinger

NPSY 125a Advanced Topics in Perception and Adaptation

[sn ss]

Prerequisites: MATH 10b, NBIO 104b, and PHYS 10a.

Covers current issues and theories in vision, vestibular function, proprioception, and adaptation to unusual force environments from psychological and biological perspectives. Usually offered every third year.

Mr. Lackner

NPSY 128b Motor Control, Orientation, and Adaptation

[ss sn]

Prerequisite: NBIO 140b.

A seminar critically reviewing and discussing current research about spatially adapted animal movement. The analysis focuses on behavioral properties, biophysics, and neural substrates. Topics include sensorimotor transformations, learning, memory, context specificity, and sensorimotor adaptation. Usually offered every second year.

Mr. DiZio

PSYC 130b Life Span Development: Middle Adulthood

[ss]

Prerequisites: PSYC 1a, 31a or 33a, 51a, 52a, or permission of the instructor.

Seminar on advanced topics in life span developmental theory and methodology. Substantive emphasis will be on cognitive, personality, social, and physical changes that occur in midlife. Usually offered every second year.

Ms. Lachman

PSYC 133a Seminar in Nonverbal Communication

[ss]

Prerequisites: PSYC 1a, 51a, and 52a or permission of the instructor.

Seminar in advanced topics in nonverbal communication covering theoretical and methodological issues. Topics will include the nonverbal communication of one or more attributes (emotion, demographic qualities, identity, and personality traits) through various modalities (face, voice, body) and the factors that influence the accuracy of nonverbal communication. Usually offered every second year.

Ms. Zebrowitz

PSYC 134a Emotions and Well-Being

[ss]

Prerequisites: PSYC 34b, 51a, 52a.

Who is happy? Are emotions universal? Investigates psychological theory and research on emotion and well-being. Considers the nature of emotional experience and focuses on the causes and consequences of well-being and happiness. Usually offered every second year.

Mr. Isaacowitz

PSYC 135b Seminar in Social Cognition

[ss]

Prerequisites: PSYC 1a, 34b, 51a, 52a, or permission of the instructor.

Considers the general nature of stereotypes, prejudice, and discrimination, theoretical explanations for these phenomena, and methods for assessing them. Specific examples of stereotyping are discussed in light of research methods and theoretical issues. Attention is given to stereotype accuracy, self-fulfilling prophecy effects, and mechanisms for coping with stereotypes. Usually offered every second year.

Ms. Zebrowitz

PSYC 136b Advanced Topics in Developmental Psychology

[ss]

Prerequisites: PSYC 52a and 33a and permission of the instructor. Juniors and seniors have priority for enrollment.

Although topics vary from year to year, the course may NOT be repeated for credit. Provides students with detailed information about theories and special topics of research in developmental psychology. Usually offered every second year.

Mr. Watson

NPSY 137b Cognitive Modeling

[sn ss]

Prerequisites: MATH 10b and PSYC 51a or NBIO 136b, or permission of the instructor.

A general introduction to the construction and simulation of mathematical models of human cognitive processes. The major emphasis will be on models of human learning and memory. Students will be expected to have some background in computer programming. Usually offered every second year.

Mr. Fiser

PSYC 145b Aging in a Changing World

[ss]

Prerequisites: PSYC 1a, 51a, 52a, or permission of the instructor.

Psychological issues related to the aging process are examined in a multidisciplinary perspective. Topics include intellectual functioning, memory loss, personality changes, and physiological changes in later life. Usually offered every third year.

Mr. Isaacowitz and Ms. Lachman

PSYC 150b Organizational Behavior

[ss]

Prerequisites: PSYC 1a, PSYC 51a, and PSYC 52a.

Covers the fundamentals of industrial/organizational psychology, including the topics of leadership, work motivation, organizational culture, organizational structure, group dynamics, perception, decision making, and cross-cultural interaction. Assignments include group project analysis of real organizational dilemma using concepts covered in class. Usually offered every year.

Mr. Molinsky

NPSY 154a Human Memory

[sn ss]

Prerequisite: NPSY 22b.

Presents a systematic analysis of current memory research and theory with an emphasis on visual learning experiments and neural network models. Usually offered every third year.

Staff

PSYC 155a Perceptual Development

[ss]

Seminar will discuss current issues in the development of visual space perception. Usually offered every third year.

Mr. Hershenson

NPSY 159a Advanced Topics in Episodic Memory

[sn ss]

Prerequisites: NBIO 140b or NPSY 154a and permission of the instructor.

Deals with current topics in the study of episodic memory. Discussions and readings on topics such as memory for temporal order, category learning, associative symmetry, item versus associative recognition, theories of search in free recall, and the memory systems controversy.

Usually offered every second year.

Staff

PSYC 160b Seminar on Sex Differences

[ss]

Prerequisite: PSYC 1a, 51a, 52a or permission of the instructor.

Considers research evidence bearing on sex differences in the cognitive domain and in the social domain, evaluating this evidence in light of biological, cultural, and social-cognitive theories as well as methodological issues. Usually offered every second year.

Ms. Zebrowitz

PSYC 161a Clinical Psychology Practicum I

[ss]

Prerequisites: PSYC 1a and 31a or 32a.

Students must enroll in this course in order to enroll in PSYC 161b and should only enroll in this course if they are also able to enroll in PSYC 161b in the spring semester.

In conjunction with PSYC 161b, provides intensive supervised experience in mental health intervention. Students serve in helping roles as volunteers for eight hours a week in social service and mental health programs. They relate their experience to empirical and literary readings within the context of group supervision in weekly seminars. Usually offered every year.

Mr. Cunningham

PSYC 161b Clinical Psychology Practicum II

[ss]

Prerequisite: Students may enroll in the course only if they have completed PSYC 161a in the previous semester.

In conjunction with PSYC 161a, provides intensive supervised experience in mental health intervention. Students serve in helping roles as volunteers for eight hours a week in social service and mental health programs. They relate their experience to empirical and literary readings within the context of group supervision in weekly seminars. Usually offered every year.

Mr. Cunningham

PSYC 164b Social Relations and Health across the Life Span

[ss]

Prerequisites: PSYC 1a, PSYC 51a, and 52a.

Examines ways in which our relationships with others are intricately intertwined with many aspects of our health across the human life span. Discusses the current literature related to social relations and occurrence of, and coping with, specific diseases (e.g., AIDS, cancer, heart disease, arthritis) and the relationship of social relations to prevention of illness. Considers issues of gender, race/ethnicity, and other social categories that interact with social relations and health in adulthood. Usually offered every second year.

Staff

PSYC 167b Schools of Psychotherapy

[ss]

Prerequisites: PSYC 1a and 32a. (Latter may be taken concurrently.)

The theories and techniques of several schools of psychotherapy and behavior modification are considered. The theories of personality, methods of intervention, goals of therapy, and relevant research will be emphasized. Usually offered every third year.

Mr. Knight

NPSY 168b Electrophysiology of Human Memory

[ss sn]

Prerequisites: PSYC 51a, NBIO 140b, NPSY 22b.

Laboratory course covering experimental methods and data analysis of electroencephalographic recordings during memory tasks. Projects involve data collection using a 128-channel EEG system. Topics cover time- and frequency-based methods as well as source modeling. Usually offered every year.

Staff

PSYC 169b Disorders of Childhood

[ss]

Prerequisites: PSYC 1a, 33a, or permission of the instructor. Seniors and juniors have priority for admission.

Issues of theory, research, and practice in the areas of child and family psychopathology and treatment are reviewed in the context of normal developmental processes. Usually offered every fall.

Mr. Cunningham

NPSY 174b Visual Cognition

[sn ss]

Prerequisite: NPSY 12a or permission of the instructor.

Higher-order processes in vision. Visual impact of cognitive and other top-down influences, including attention, expectation, plasticity, and learning. Focus on visual recognition, contour formation, segmentation, temporal binding, and face and object perception. Studies of visual perception in brain-damaged individuals. Usually offered every second year.

Mr. Sekuler or Mr. Fiser

NPSY 175b The Neuroscience of Vision

[sn ss]

Prerequisite: NPSY 12a or permission of the instructor.

Examines the neural basis of human vision from several complementary perspectives. Relates visual capacities of human observers to the structure and function of the visual system. Considers computational and functional neuroimaging approaches to vision. Usually offered every second year.

Mr. Sekuler

PSYC 183a Social Cognition from a Cognitive Science Perspective

[ss]

This course may not be repeated for credit by students who have taken LING 183a in previous years.

In order for an organism to behave socially, it must have internalized knowledge of the distinctions and options available for social and cultural interaction. Explores the character of such knowledge, drawing on literature in ethology and evolutionary psychology and on parallels with linguistics. Usually offered every third year.

Staff

PSYC 193b Tests and Measurements

[ss]

Prerequisites: PSYC 1a and 51a.

Covers test theory, types of measurement, the theory and measurement of reliability and validity, and test construction. The measurement of intelligence, achievement, and personality are considered. Usually offered every second year.

Mr. Knight

PSYC 195a History of Psychology

[ss]

Structuralism, Gestalt theory, William James (consciousness), functionalism, behaviorism, learning theories, psychoanalysis, Piaget, cognitive theories, etc. Recommended for students taking the psychology GRE. Usually offered every semester.

Mr. Hershenson

NPSY 196b Advanced Topics in Cognition

[ss sn]

Prerequisite: NPSY 159a or permission of the instructor.

This seminar covers current issues and research in memory, speech perception, and processing resource limitations. Emphasis will be placed on the current literature in the field. Usually offered every second year.

Mr. Wingfield

NPSY 197a Advanced Topics in Behavioral Neuroscience

[sn ss]

Prerequisites: NPSY 11b and NBIO 140b or permission of the instructor.

Covers current research and issues pertaining to the neurobiology of perception (focusing mainly but not exclusively on perception of chemosensory signals) as well as the neurobiology of simple learning. Usually offered every year.

Mr. Katz

NPSY 199a Human Neuropsychology

[sn ss]

Prerequisite: NPSY 22b or NBIO 140b or permission of the instructor.

Designed as an introduction to human neuropsychology. Topics include cerebral dominance, neuroanatomical mapping, and localization of function, with special reference to language, memory, and related cognitive function. Usually offered every year.

Mr. Wingfield

(200 and above) Primarily for Graduate Students

NPSY 207b Seminar in Perception

Prerequisites: MATH 10b, NBIO 140b, and PHYS 10a.

Examines the various aspects of visual, vestibular, motor, and proprioceptive information by which objects and events in three-dimensional space are perceived by human observers. Current research in psychology and artificial intelligence is considered. Usually offered every second year.

Mr. Lackner

PSYC 210a Advanced Psychological Statistics I

In conjunction with PSYC 210b, this course teaches students how to do independent data analysis in psychology at a PhD level. Topics include methods for describing data, exploratory data analysis, elementary probability theory, null hypothesis significance testing and alternatives, the binomial distribution, contingency table analysis, one-way and factorial analysis of variance, and repeated measures analysis. Students receive extensive instruction in the use of the Statistical Program for the Social Sciences (SPSS). Usually offered every year.

Mr. Liu

PSYC 210b Advanced Psychological Statistics II

Prerequisite: PSYC 210a.

This course is a continuation of PSYC 210a. Topics include statistical power analysis, simple correlation and regression, multiple regression, nonparametric statistics, an introduction of logistic regression, and a brief introduction to multivariate procedures. Students learn to use multiple regression as a general data analytic system. More advanced instruction in SPSS is also provided. Usually offered every year.

Mr. Liu

PSYC 211a Graduate Research Methods in Psychology

A required course for all master's degree students, first-year doctoral students in the social developmental program, and selected undergraduate students by permission of the instructor. Students who are interested in this course must consult with the department one semester before anticipated enrollment.

The lecture offers supervised practice in research design, including experimental and correlational designs, data analysis and interpretation, and formal presentation of research results. Usually offered every year in the fall semester.

Ms. Lachman, Ms. Zebrowitz, and Mr. Liu

PSYC 215a Multivariate Statistics I: Applied Structural Equation Modeling

Prerequisites: PSYC 210a and 210b or equivalents.

Covers theory, methods, and applications of structural equation modeling (SEM) using LISREL. Introduces the conceptual and procedural principles underlying SEM, enables students to analyze data by using SEM methods, and exposes students to SEM techniques used in the literature. Usually offered every second year.

Mr. Liu

PSYC 220a Research in Spatial Orientation

Mr. Lackner

PSYC 223a Research in Behavioral Neuroscience

Mr. Katz

PSYC 224a Research in Speech Perception and Cognitive Processes

Mr. Wingfield

PSYC 225a Research in Visual Space Perception

Mr. Hershenson

PSYC 226a Research in Cognitive Processes and Psychopathology

Mr. Knight

PSYC 229a Research in Person Perception

Ms. Zebrowitz

PSYC 230a Research in Animal Behavior

Mr. Wodinsky

PSYC 232a Research in Developmental Psychopathology

Mr. Cunningham

PSYC 233a Research in Visual Cognition

Mr. Sekuler

PSYC 234a Research in Life-Span Development

Ms. Lachman

PSYC 235a Research in Organizational Psychology

Mr. Molinsky

PSYC 236a Research in Developmental Psychology

Mr. Watson

PSYC 237b Research in Perceptual Development

Staff

PSYC 239a Research in Human Motor Control

Mr. DiZio

PSYC 240a Research in Visual Recognition and Learning

Mr. Fiser

PSYC 241a Research in Aging, Culture, and Cognition

Ms. Gutchess

PSYC 242a Research in Forensics

Mr. Knight

PSYC 243a Research in Emotion and Aging

Mr. Isaacowitz

PSYC 244a Research in Health and Aging

Staff

PSYC 250a Advanced Research Project

Usually offered every year.

Staff

PSYC 250b Master's Project Readings

Usually offered every year.

Staff

PSYC 253a Advanced Research Methods in Social Perception

Prerequisites: PSYC 211a or PSYC 52a and PSYC 51a or PSYC 210a.

Provides supervised experience in social perception research. Students conduct research projects and discuss the design, execution, and analyses of these projects in a weekly seminar that considers methodologies for research on nonverbal communication, impression formation, and stereotyping. Usually offered every second year.

Ms. Zebrowitz

PSYC 280a Advanced Readings

Usually offered every year.

Staff

PSYC 300a Proseminar in Social Developmental Psychology I

Offers an in-depth review of primary sources in several major topic areas of social and developmental psychology. Usually offered every second year.

Staff

PSYC 302a Proseminar in Social Developmental Psychology II

An in-depth review of primary sources in several major topic areas of social and developmental psychology. Usually offered every second year.

Staff

PSYC 316a Social Developmental Psychology Research Seminar

Required of all social developmental program graduate students who have not been admitted to candidacy. Usually offered every year.

Staff

PSYC 400d Dissertation Research

Specific sections for individual faculty members as requested.

Staff

Cross-Listed Courses**ANTH 161b**

Culture and Cognition

HS 373a

Children and Families of Color

LING 197a

Language Acquisition and Development

NBIO 150a

Autism and Human Developmental Disorders

PHIL 39b

Philosophy of Mind

PHIL 123b

Topics in Biomedical Ethics

PHIL 141b

Topics in Philosophy and Cognitive Science

Required First-Year Graduate Health-Related Science Programs Course**CONT 300b Ethical Practice in Health-Related Sciences***Required of all first-year graduate students in health-related science programs. Not for credit.*

Ethics is an essential aspect of scientific research. This course, taught by university faculty from several graduate disciplines, covers major ethical issues germane to the broader scientific enterprise, including areas or applications from a number of fields of study. Lectures and relevant case studies are complemented by public lectures during the course. Usually offered every year.

Mr. Morris

A graduate program

Quantitative Biology**Objectives**

The quantitative biology program is designed to enhance the student's capacity for independent research in subjects at the interface of the physical and life sciences. By completing the quantitative biology curriculum, students gain expertise in applying quantitative physical/chemical modeling and experimental techniques to solving important problems in biomedical research.

How to Obtain the Additional PhD Specialization

The quantitative biology specialization is available only to students enrolled and working toward the PhD degree in one of the six participating graduate programs: biochemistry, biophysics and structural biology, chemistry, molecular and cell biology, neuroscience, and physics. Individuals who want to obtain a PhD degree with a specialization in quantitative biology should apply to one of the participating PhD programs as described in the relevant section of this *Bulletin*. Enrolled PhD students who want to obtain the quantitative biology specialization should contact their PhD program's graduate program chair or quantitative biology liaison for further information. Students wishing to obtain the specialization are advised also to contact one of the quantitative biology co-chairs for information about participating in the noncurricular educational activities of the quantitative biology program.

Faculty Advisory Committee**Jeff Gelles, Co-Chair**

(Biochemistry)

Jané Kondev, Co-Chair, Liaison to PhysicsPhD program
(Physics)**Irving Epstein, Liaison to Chemistry PhD**program
(Chemistry)**Bruce Goode, Liaison to Molecular and Cell**Biology PhD program
(Biology)**Dorothee Kern, Liaison to Biophysics and**Structural Biology PhD program
(Biochemistry)**Eve Marder, Liaison to Neuroscience PhD**program
(Biology)**Christopher Miller, Liaison to Biochemistry**PhD program
(Biochemistry)

Requirements for the Specialization to the Degree of Doctor of Philosophy

Students must complete all requirements for the degree of Doctor of Philosophy in the PhD program in which they are enrolled. In addition, students must successfully complete three of the following four courses: QBIO 110a, QBIO 120b, BCHM 102a, and PHYS 105a.

Courses of Instruction

(100-199) For Both Undergraduate and Graduate Students

QBIO 110a Numerical Modeling of Biological Systems

[sn]

Prerequisite: MATH 10a,b or equivalent.
Modern scientific computation applied to problems in molecular and cell biology. Covers techniques such as numerical integration of differential equations, molecular dynamics and Monte Carlo simulations. Applications range from enzymes and molecular motors to cells. Usually offered every year.
Staff

QBIO 120b Quantitative Biology Instrumentation Laboratory

[sn]

Focuses on optical and other instruments commonly used in biomedical laboratories to make quantitative measurements in vivo and in vitro. Students disassemble and reconfigure modular instruments in laboratory exercises that critically evaluate instrument reliability and usability and investigate the origins of noise and systematic error in measurements. Usually offered every year.
Mr. Dogic

Cross-Listed Courses

BCHM 102a

Quantitative Approaches to Biochemical Systems

BCHM 104b

Physical Chemistry of Macromolecules

CHEM 147b

Mass Spectrometry

COSI 230a

Topics in Computational Biology

NBIO 136b

Computational Neuroscience

PHYS 105a

Biological Physics