



**University Graduate School
2007-2008
Academic Bulletin**

Psychological and Brain Sciences

University Graduate School
Kirkwood Hall 111
Indiana University
Bloomington, IN 47405
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**College of Arts and Sciences
Bloomington**

Chairperson
Professor Linda B. Smith*

Associate Chairperson
Olaf Sporns*

Departmental URL
www.indiana.edu/~psych

Departmental E-mail
psych@www.indiana.edu

Graduate Faculty

(An asterisk [*] denotes membership in the University Graduate School faculty with the endorsement to direct doctoral dissertations.)

Distinguished Professors
Eliot Hearst* (Emeritus), Richard M. Shiffrin*

Jack and Linda Gill Chair
J. Michael Walker*

Luther Dana Waterman Professor
Richard M. Shiffrin*

Eleanor Cox Riggs Professor
Joseph E. Steinmetz*

Rudy Professor
James T. Townsend*

Chancellors' Professors
James C. Craig*, Robert Nosofsky*, David B. Pisoni*, George V. Rebec*, Steven J. Sherman*, Linda B. Smith*

Professors
Jeffrey R. Alberts*, James Allison* (Emeritus), John E. Bates*, Richard Berry* (Emeritus), Geoffrey Bingham*, Sharon Brehm, Alexander Buchwald* (Emeritus), Jerome R. Busemeyer*,

Jerome Chertkoff* (Emeritus), Joseph Farley*, Peter Finn*, Gabriel Frommer* (Emeritus), Preston Evans Garraghty*, Robert L. Goldstone*, S. Lee Guth* (Emeritus, Visual Sciences), Julia R. Heiman*, Kenneth Heller* (Emeritus), Amy Holtzworth-Munroe*, Margaret Intons-Peterson* (Emerita), Susan S. Jones*, John K. Kruschke*, Richard McFall* (Emeritus), Conrad Mueller* (Emeritus), Lloyd Peterson* (Emeritus), Donald Robinson* (Emeritus), Richard Rose* (Emeritus), Dale R. Sengelaub*, Eliot R. Smith*, William D. Timberlake*, Peter Todd*, Richard Viken*, J. Michael Walker*, Stanley Wasserman*, Charles Watson* (Emeritus, Speech and Hearing Sciences), Meredith West*

Associate Professors

Thomas A. Busey*, William Hetrick*, Edward R. Hirt*, Harold Lindman* (Emeritus), Brian F. O'Donnell, Olaf Sporns*, Julie C. Stout*

Assistant Professors

Brian D'Onofrio, Jason M. Gold*, Thomas W. James*, Sharlene D. Newman*, Anne Prieto*, Zakary L. Tormala*, Cara L. Wellman*, Chen Yu *

Graduate Advisor

Professor Meredith West*, Psychology Building 351, (812) 855-9597

Special Departmental Requirements

(See also [general University Graduate School requirements.](#))

Admission Requirements

General psychology, laboratory work, and one course in statistics. In exceptional cases, these requirements may be reduced by the chairperson with the consent of the dean of the University Graduate School, particularly if the student has a good background in a biological science, physics, or mathematics. Deficiencies may be removed while pursuing graduate degrees.

Grades

An average of at least a B+ (3.3) must be maintained in all course work. No grades below B- (2.7) may be counted toward degree requirements. Students receiving more than one grade below B- (2.7) are not in good standing and are subject to dismissal.

Research

To remain in good standing, students must be involved in productive research during their first and second years of graduate study. Evaluation of students is based on two research projects and on research potential, as well as on course work. All students are expected to develop research skills appropriate to their programs through a combination of course work, individual study, and experience.

Master of Arts Degree

Course Requirements

A total of 30 credit hours including a core consisting of P553 and P595, and one graduate course in four areas of specialization in the department. No training program in clinical psychology is offered at the master's level. Students ordinarily are not admitted for work leading only to the master's degree. They may be admitted when unusual administrative or evaluative circumstances warrant.

Thesis

Required.

Doctor of Philosophy Degree

Course Requirements

A total of 90 credit hours, including dissertation; a core consisting of P553, P554, and P595; course selections from the student's area of specialization; and one graduate course in two areas outside the student's specialization. Majors in clinical science must also take 12 credit hours of clinical core courses, two clinical elective courses, and 4 credit hours in P690; and must successfully complete a one-year internship at an institution approved by the department. Additional course requirements may be specified by the student's advisory committee.

Minor

A doctoral student may choose to minor outside of the department or to take an in-depth minor within the Department of Psychology. If a minor outside the department is elected, the requirements are specified by that unit. An in-depth minor within the department consists of 9 credit hours of graduate course work in an area of psychology other than that of the major. The specific courses making up such a minor must be approved by the student's advisory committee.

Other Provision

All students are required to serve one year as associate instructors or obtain equivalent teaching experience as approved by the department chair.

Qualifying Examination

Written and oral; must be taken at the beginning of the fifth regular semester of residency. Students failing the qualifying examination twice will be dismissed from the program.

Ph.D. Minor in Psychology

Doctoral students in other departments may elect psychology as an outside minor. A minimum of four courses at the 400 level or above is required. The student must achieve a grade of at least B- in each course and an overall grade point average of at least 3.0. The specific courses must be approved by a faculty advisor and may include no more than one research course (P895). ACCREDITATION STATUS: The Clinical Science Program in the Department of Psychological and Brain Sciences at Indiana University has been accredited continuously since 1948 by the American Psychological Association Committee on Accreditation. For further information on the program's status you may contact: Committee on Accreditation c/o Office of Program Consultation and Accreditation Education Directorate American Psychological Association 750 First Street NE Washington, DC 20002-4242 (202) 336-5979

Courses

Courses in the department numbered below P400 are not acceptable as credit toward a graduate degree in psychology.

P412 Laboratory in Human Performance (3 cr.)

P417 Animal Behavior (3 cr.)

P421 Laboratory in Social Psychology (3 cr.)

P423 Human Neuropsychology (3 cr.)

P424 Laboratory in Sensation and Perception (3 cr.)

P425 Behavior Disorders of Childhood and Adolescence (3 cr.)

P426 Laboratory in Behavioral Neuroscience (3 cr.)

P429 Laboratory in Developmental Psychology (3 cr.)

P434 Community Psychology (3 cr.)

P435 Laboratory in Human Learning and Cognition (3 cr.)

P436 Laboratory in Animal Learning and Motivation (3 cr.)

P438 Language and Cognition (3 cr.)

P459 History and Systems of Psychology (3 cr.)
P460 Women: A Psychological Perspective (3 cr.)

Undergraduates may, by consent of the instructor, register in and receive credit for graduate courses (numbered P500 and above). Ordinarily such consent is not granted unless the student has completed 20 credit hours of psychology. Students in the psychology Ph.D. program may not take a 400-level course for graduate credit if an equivalent higher-level graduate course is available.

P500 Psychology for Graduate Students (3 cr.) P: graduate standing or consent of instructor. Basic psychological principles. For students with little or no previous training in psychology.

P501 Research Issues in Clinical Psychology (3 cr.) P: graduate standing in psychology or consent of instructor. A research-oriented survey of psychopathy, assessment, and psychotherapy. Models of psychological disorder; strategies of etiological research; test construction and clinical prediction; research on process and outcomes of psychotherapy. Credit not given for both P501 and P530.

P502 Developmental Psychology (3 cr.) An advanced introduction to the theory and experimental analysis of ontogenetic processes. Special emphasis on human development.

P503 Complex Cognitive Processes (3 cr.) P: graduate standing in psychology or consent of instructor. A survey of topics in human information processing, including attention, short-term storage, long-term retention, retrieval from memory, concept attainment, problem solving, speech perception, and psycholinguistics.

P504 Learning and Motivation (3 cr.) P: graduate standing in psychology or consent of instructor. Introduction to theory and experimental literature in learning and motivation. Focus on nonhuman behavior.

P505 Physiological Psychology (3 cr.) P: graduate standing in psychology or consent of instructor. Intensive introduction to physiological psychology, with special emphasis on its relation to other areas of psychology.

P506 Sensory Psychology (3 cr.) P: graduate standing in psychology or consent of instructor. Introduction to methods and research in sensory psychology.

P507 Theories of Learning (3 cr.) Survey, comparison, and critical analysis of modern theories of learning, from Thorndike to present.

P510 Principles of Research in Psychology (3 cr.) Principles of construction and testing of psychological theories; experimental and nonexperimental designs; requirements of valid inference; measurement of psychological constructs; research methods including laboratory studies, surveys, observation methods.

P511 Social Psychology (3 cr.) P: graduate standing in psychology or consent of instructor. Introduction to theory and research in social psychology.

P514 Methods in Biopsychology (2 cr.) P: K300 or equivalent, course in laboratory psychology. Training in research techniques in sensory and physiological psychology.

P517 Methods in the Direct Observation of Behavior (3 cr.) P: P553 or its equivalent. Reviews current use of observational techniques in the study of animal and human behavior, and critically considers the development of coding schemes and strategies of data recording and analysis.

P519 Current Theories of Personality (3 cr.) P: graduate standing, consent of instructor. Original writings of major contemporary theorists of personality.

P523 Operant Research (2 cr.) Preparation for research using operant procedures: rationale, instrumentation, techniques of behavioral control, experimental strategy, problems of within-subject comparison, analysis of data.

P525 Classical Conditioning (3 cr.) Critical evaluation of experimental literature. Emphasis on methodological and theoretical issues.

P526 Neurobiology of Learning and Memory (3 cr.) Comprehensive survey of the cellular and molecular bases of associative and nonassociative forms of learning and memory. Vertebrate and invertebrate model systems and preparations as well as data obtained from the human neuropsychology literature will be studied.

P527 Developmental Psychobiology (3 cr.) Ontogeny of sensory-motor behavior and its underlying anatomical and physiological development.

P528 Experimental Analysis of Economic Behavior (3 cr.) P: graduate standing or permission of instructor. Relations between experimental psychology and microeconomics: basic concepts, theory, and research.

P530 Clinical Psychology (3 cr.) P: graduate standing and consent of instructor. Introduction to clinical psychology as an experimental-behavioral science, with an emphasis on theoretical, methodological, and ethical issues basic to clinical research and professional practice.

P533 Introduction to Bayesian Data Analysis I (3 cr.) P: basic calculus (e.g., MATH M212 or equiv.) and computer programming (e.g., CSCI A201 or equivalent). Introduction to Bayesian analysis of data from simple experiment designs using hierarchical models and Monte Carlo methods.

P534 Introduction to Bayesian Data Analysis II (3 cr.) P: basic calculus (e.g., MATH M212 or equiv.) and computer programming (e.g., CSCI A201 or equivalent). Introduction to Bayesian analysis of data from simple experiment designs using hierarchical models and Monte Carlo methods.

P536 Theory of Tests and Measurements (3 cr.) P: P553. Survey of test and measurement procedures; classical test theories, statistical theories; models of tests.

P540 Principles of Psychological Assessment and Prediction (3 cr.) P: P553-P554 or equivalent. Concepts of validity and reliability. Diagnostic devices viewed as bases for decisions. Classification. Comparison of methods of making predictions about individuals.

P541 Individual Differences in Intellectual Abilities (3 cr.) P: graduate standing in psychology or consent of instructor. Individual differences in cognitive functioning; evaluation of assessment techniques.

P553-P554 Advanced Statistics in Psychology I-II (3-3 cr.) P: K300 or equivalent. Statistical inference applied to problems in psychological research. Experimental design and data interpretation. Elementary probability theory, statistical distribution, classical and nonparametric tests of hypotheses, point and interval estimation. Relations between statistical models and experimental controls.

P555 Computer Application in Psychological Research (3 cr.) P: P553, knowledge of FORTRAN. Survey of uses of computers as research tools. Programming languages, numerical methods, data analysis, library routines, simulation, graphics, and laboratory control.

P556 Independent Computer Project (2 cr.) The student carries out a project involving the use of a computer in some phase of psychological research. Some new development or sophisticated modification of available programs is required.

P557 Representation of Structure in Psychological Data (3 cr.) P: P553 or consent of instructor. Survey of multidimensional scaling, clustering, choice theory, and signal detection approaches to modeling similarity and classification. Theory and application.

P564 Psychophysics (3 cr.) Classical and modern methods for investigation of sensory-perceptual processes. Application of signal detectability theory to psychophysics; emphasis on current research on detection and recognition of auditory signals in noise.

- P565 Psychophysics of Vision (3 cr.)** Critical evaluation of research literature on visual functions of brightness, color, and spatial discrimination.
- P566 Psychophysiology of Vision (3 cr.)** Relations among physiology of sensory action and psychophysics of brightness, color, and spatial discrimination.
- P595 First-Year Research Seminar (2-3 cr.)** Presentation and discussion of first-year graduate student research projects.
- P605 Introduction to Mathematical Psychology (3 cr.)** P: P553 or consent of instructor. Current applications of mathematics to psychology.
- P615 Developmental Psychology I (3 cr.)** An analysis of developmental processes in humans and nonhumans. Emphasis on the study of mechanisms that control the ontogeny of sensory, motor, cognitive, and language systems.
- P616 Advanced Child Psychology (3 cr.)** Critical examination of the literature. Behavior changes from birth through adolescence.
- P619 Seminar in Personality (3 cr.)** P: P519 or consent of instructor. Critical discussion of current factual and theoretical issues in personality.
- P620 Attitudes and Attitude Change (3 cr.)** P: P320, P511, or consent of instructor. Conceptions of the attitude construct and theories of attitude formation and change.
- P623 Psychology of Language (3 cr.)** Psycholinguistic events, including communicative speech, gestures, and symbolic behavior. Interrelations between linguistic and other psychological processes in individual and social situations.
- P624 Principles of Psychopathology (3 cr.)** P: graduate standing and consent of instructor. Description of the phenomena of psychopathology and the principles associated with their classification.
- P625 Operant Conditioning (3 cr.)** A survey and interpretation of research findings on problems of systematic interest for a general science of behavior, with emphasis on recent work.
- P628 Psychophysiology of Somatic Functions (3 cr.)** Theories and current experimental work on emotions. Environmental and organismic factors affecting somatic functions. Control of somatic functions.
- P631 Intervention and Evaluation (3 cr.)** P: consent of instructor. A systematic comparison of theories of psychotherapy and behavior change. Introduction to evaluation techniques appropriate to applied settings.
- P632 Introduction to Clinical Interventions (3 cr.)** P: P631 and consent of instructor. Systematic integration of theory, research, technique, and evaluation. Based on the available research literature, time-limited and structured interventions for specific clinical problems are designed, administered, and evaluated.
- P634 Advanced Survey of Community Psychology (3 cr.)** P: 15 credit hours of psychology or consent of instructor. A survey of issues and research in community psychology. Topics covered include the role of conceptual models in guiding intervention practices; research in social epidemiology, prevention, consultation, and organizational and community change.
- P635 Applied Human Learning (3 cr.)** P: graduate standing and one course in learning or consent of instructor. Critical study of situational attempts to apply learning principles; e.g., programmed instruction, second-language learning, speech correction, psychotherapy, training and retraining of the handicapped and the retarded.
- P638 Experimental Psychology of Reading (3 cr.)** Examination of the component stages of the reading process. Focuses on how visual information is processed within the framework of information processing and psycholinguistics. Topics to be considered include alphabets, phonetics and phonology, letter recognition, word and sentence processing, cognitive bases of reading, and methods currently employed in teaching reading.

P641 Assessment (3 cr.) P: consent of instructor. Review of research and theory on methods of gathering information about individuals.

P643 Perception and Sensory Memory (3 cr.) Analysis of the experimental literature and theories of perception and sensory memory.

P644 Attention and Short-Term Memory (3 cr.) Analysis of the experimental literature and theories of human attention and short-term memory, including visual and verbal systems and forgetting.

P645 Learning and Long-Term Memory (3 cr.) Analysis of the experimental literature and theories of human learning and long-term memory, including forgetting, organization, sentence memory, and nonverbal memory.

P646 Knowledge Systems and Problem Solving (3 cr.) Analysis of the experimental literature and theories of human knowledge systems and problem solving, including conceptual systems for word meanings, propositions, abstractions, and spatial and serial relations.

P647 Decision Making under Uncertainty (3 cr.) P: P553 or consent of instructor. Detailed survey of decision making under uncertainty. Theories, data, and application of decision making in situations involving imperfect (probabilistic) information; preference and inference in judgment. Applications covered include learning, risky choice, diagnostic decisions, group decisions.

P648 Choice Behavior (3 cr.) P: P553 or consent of instructor. Preferential choice under conditions of certainty. Critical review of the properties and limitations of current theories of choice and scaling.

P650 Neuroimaging: Theory and Methods (3 cr.) Covers theory and methods of neuroimaging with a particular emphasis on functional MRI. Specific topics include experimental design, data acquisition, data analysis, data interpretation, and data presentation. Also covers introductory MR physics and the physiology of blood oxygen-level dependent (BOLD) changes.

P651 Perception/Action (3 cr.) P: consent of instructor. Coverage includes event perception, optical flow analysis (aperture problem, correspondence problem, structure from motion, sensory psychophysics, contact with machine vision), problems in motor coordination and control (motor equivalence, degrees of freedom problem, contact with physiology of movement and robotics). Focus on the relation between perception and action.

P653 Analysis of Variance (3 cr.) P: P553-P554. Data analysis of standard experimental designs, including multiway designs, nested and crossed, with fixed and random factors. Statistical tests and estimation, with emphasis on individual comparisons, including trend analysis.

P654 Multivariate Analysis (3 cr.) P: P553-P554. Survey of multivariate statistical methods; partial, multiple, and canonical correlation, factor analysis, discriminant analysis, classification procedures, profile analysis, and multivariate analysis of variance.

P657 Topical Seminar (cr. arr.) Topics of current interest, with intensive critical examination of appropriate literature. Different staff member in charge each semester.

P658-P659 Mathematical Models in Psychology I-II (4-4 cr.) P: P605 or consent of instructor. Intensive study of mathematical models employed in experimental psychology: learning, perception, reaction time, social processes. Emphasis on probability methods.

P660 The Teaching of Psychology (1 cr.) Open to advanced graduate students. Problems of selection, organization, and presentation of psychological knowledge to undergraduates. Emphasis on introductory lecture and laboratory courses.

P665 Psychophysics of Hearing (3 cr.) A critical analysis of current research in psychoacoustics: signal analysis, psychophysical techniques, theories of detection and parameter extraction, frequency analysis, and binaural signal processing.

P667 Neuropsychopharmacology (3 cr.) Analysis of neural mechanisms of drug effects on animal and human behavior, based on behavioral and biological experiments.

P669 Neurobiology of Behavioral Disorders (3 cr.) P: N500 and N501, and at least one other graduate course in neuroscience or behavioral neuroscience. Neural mechanisms underlying selected neurological and psychological dysfunctions.

P674 Seminar in Abnormal Psychology (2 cr.) Selected topics.

P686-P687 Current Psychological Literature I-II (1-1 cr.) Review of current psychological journals.

P690 Practicum in Clinical Psychology (cr. arr.) P: consent of instructor.

P695 Second-Year Research Seminar (1-2 cr.) Presentation and discussion of second-year graduate student research projects.

P700 Research and Theory in Social Psychology (0-2 cr.) P: consent of instructor. Four semesters required for graduate students in Social Psychology, one for credit. Meets weekly. Invited speakers will sometimes present colloquia. Students taking the course for 1 credit will be required to participate in discussions and readings. For 2 credits, students will be required to make a presentation. Mostly, students will present their own research.

P717 Evolutionary Bases of Learning (3 cr.) P: written consent of instructor. Examines learning as an evolved ability which equips organisms to deal with predictable variability in the environment. Compares ethological, comparative, and general process approaches to the study of learning.

P720 Dyadic Interaction (3 cr.) P: P320, P511, or consent of instructor. General models of dyadic interaction; theories and research on affiliation, interpersonal attraction, and the development, maintenance, and dissolution of social relationships.

P721 Conflict, Aggression, and Altruism (3 cr.) P: P320, P511, or consent of instructor. Theories and research on social conflict, aggression, and altruism in humans.

P734 Community Intervention (3 cr.) P: P634 or consent of instructor. Theories and concepts of change in community systems. Ecological conception of human adaptation. Research methods for defining problems, monitoring processes, and assessing outcomes of changes in social systems. Models of intervention with emphasis on community participation, collaboration, and accountability.

P736 Child Psychopathology (3 cr.) Seminar on serious behavior disturbances of children. Comparisons with development of normal child interacting with family.

P747 Seminar in Cognitive Psychology (1-3 cr.) Selected topics.

P820 Social Perception (3 cr.) P: graduate standing in psychology or consent of instructor. Critical review of theoretical and experimental literature concerning knowledge of others as intervening variable in social behavior.

P895 Research (cr. arr.) **

P898 Master's Degree Research (cr. arr.)**

P899 Ph.D. Degree Research (cr. arr.)**

**These courses are eligible for a deferred grade.