Decision Neuroscience, Ph.D.

COLLEGE OF LIBERAL ARTS

About the Program

The field of decision neuroscience provides new insights into the mechanisms that underlie a wide range of economic and social phenomena, from risky choice and consumer behavior to altruism and cooperation. It is also a primary example of truly interdisciplinary research, with people from such diverse fields as business administration, economics, engineering, neuroscience, philosophy, physics, and psychology working together to advance knowledge of mechanisms underlying decision making and decision preferences.

The interdisciplinary Ph.D. program in Decision Neuroscience in the Department of Psychology in the College of Liberal Arts is a collaborative effort with the Fox School of Business and Management. Temple University’s Psychology Department has long been a leader in brain and cognitive science research. Similarly, through the efforts of its Center for Neural Decision Making (CNDM), Fox School has been at the forefront of the field of decision neuroscience over the past six years.

Students enrolled in the program gain a thorough understanding of the intellectual issues in the rapidly growing field of decision neuroscience and its subfields of neuroeconomics and neuromarketing. The program has the unique vision of integrating scientific findings with everyday real-world problems. It is designed for students who want to work at the intersection of neuroscience and business.

Time Limit for Degree Completion: 7 years

Campus Location: Main

Full-Time/Part-Time Status: Full-time study is required.

Interdisciplinary Study: The program is inherently interdisciplinary.

Ranking: Over the years, the Department of Psychology’s Ph.D. program has been consistently ranked among the very best by all evaluating agencies.

Job Prospects: Graduates of the program are prepared to seek tenure-track appointments either in business schools or psychology departments, depending on their approach to the program’s curriculum.

Non-Matriculated Student Policy: Non-matriculated students are not permitted to take 8000-level Psychology courses.

Financing Opportunities: Both Teaching and Research Assistantships carry a stipend, full tuition remission (up to 12 credits per term depending on year and specialization), and health insurance benefits. The principal duties of a Teaching Assistant (TA) include assisting faculty members in classroom (field and observatory) instruction, conducting tutorials and discussion sections, and grading quizzes. A Research Assistant (RA) is expected to devote 20 hours per week on average to research obligations. An RA is assigned to a faculty member or principal investigator who is working on a specific research project. The appropriate subjects are determined by consultation between the student and the student’s research and academic advisors.

Admission Requirements and Deadlines

Application Deadline:

Fall: December 1

Applications are not evaluated until after the deadline has passed.

APPLY ONLINE to this graduate program to begin the application process and receive your TUid number.

Next, visit https://www.cla.temple.edu/interfolio/decision-neuroscience-phd to create or log in to your Interfolio account. Complete the supplemental program application and upload scanned copies of all supporting documents to your account, with these exceptions:

- Scores for the GRE and TOEFL, if applicable, must be reported directly by ETS to institution code 2906.
- Official electronic transcripts must be sent to lmcduffie@temple.edu or the originals mailed to:
  Lauren McDuffie, Graduate Coordinator
  Temple University College of Liberal Arts
  Neuroscience Programs
  1701 N. 13th Street, 659 Weiss Hall (265-67)
  Philadelphia, PA 19122-6085

Letters of Reference:

Number Required: 3
From Whom: Letters of recommendation should be obtained from college/university faculty members familiar with the applicant's academic competence.

**Master's Degree in Discipline/Related Discipline:** A master's degree is not required.

**Bachelor's Degree in Discipline/Related Discipline:** All applicants must present credentials that are the equivalent of the appropriate baccalaureate degree at Temple University.

**Statement of Goals:** In approximately 500 to 1,000 words, state your interest in Temple's program, your research goals, your future career goals, and your academic and research achievements.

**Standardized Test Scores:**

- GRE: Required. Minimum scores are 153 verbal, 151 quantitative, and 304 total GRE.

Applicants who earned their baccalaureate degree from an institution where the language of instruction was other than English, with the exception of those who subsequently earned a master's degree at a U.S. institution, must report scores for a standardized test of English that meet these minimums:
  - TOEFL iBT: 105
  - IELTS Academic: 7.0
  - PTE Academic: 72

**Resume:** Current resume required.

**Program Requirements**

**General Program Requirements:**

*Number of Credits Required Beyond the Baccalaureate: 42*

**Required Courses:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td><strong>Core Courses</strong></td>
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<tr>
<td>BA 9813</td>
<td>Problem Solving using Quantitative Research Methods</td>
<td>3</td>
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<tr>
<td>MKTG 9090</td>
<td>Sem-Sel Topics in Mkbg ¹</td>
<td>3</td>
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<tr>
<td>PSY 8310</td>
<td>Topical Seminar in Cognitive Psychology (2 courses) ²</td>
<td>6</td>
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<tr>
<td></td>
<td>Course in decision neuroscience</td>
<td>3</td>
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<td></td>
<td>Proseminar in decision neuroscience</td>
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<tr>
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<td>BA 9806</td>
<td>Integrative Perspectives on Business Knowledge</td>
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<td>BA 9814</td>
<td>Advanced Quantitative Research Methods</td>
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<tr>
<td>BA 9815</td>
<td>Problem Solving using Qualitative Research Methods</td>
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<tr>
<td>PSY 8033</td>
<td>Hierarchical Linear Modeling</td>
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<td><strong>Other Electives</strong></td>
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<td>MKTG 9001</td>
<td>Sem-Marketing Theory Dev</td>
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<td>MKTG 9002</td>
<td>Sem-Behavior Res-Mktg</td>
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<td>MKTG 9003</td>
<td>Sem-Quant Research-Mktg</td>
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<td>PSY 8310</td>
<td>Topical Seminar in Cognitive Psychology</td>
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<td>PSY 8312</td>
<td>Core Course in Cognitive Psychology</td>
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<td>PSY 8712</td>
<td>Core Course in Behavioral Neuroscience</td>
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<td><strong>Research Courses</strong></td>
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<td>PSY 9994</td>
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<td>PSY 9998</td>
<td>Pre-Dissertation Research</td>
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</tr>
<tr>
<td>PSY 9999</td>
<td>Ph.D. Dissertation Research</td>
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**Total Credit Hours**

42
The select topic for this course is an introduction to research in judgment and decision making and their applications.

PSY 8310 Topical Seminar in Cognitive Psychology is taken twice for credit. One course topic provides an introduction to the biological bases of higher brain function, including attention, consciousness, emotion, executive functions, language, memory, and perception. The other provides an overview of the use of functional magnetic resonance imaging (FMRI) in the investigation of human sensory, motor, and cognitive function.

Additional Requirements:

Research Rotations:
In addition to undertaking specially designed interdisciplinary coursework, students complete research rotations during the first year of study that prepare them for independent research in the field of decision neuroscience. Students are required to complete two laboratory rotations in their first year (Fall and Spring) that would ideally be in different subfields with different mentors. Students also have the option to complete a third rotation during the Summer if they require additional exposure.

Research rotations are designed to give students a wide range of knowledge in the area of decision neuroscience by being engaged in the research of an assigned lab. When rotating through a lab (or with a research mentor), students are often paired with a senior lab member (e.g., a postdoctoral fellow or senior graduate student) to work on an ongoing research project. In some cases, they may be given a new project based on their knowledge and skill levels. Students are not, however, expected to complete a full project within an academic term.

Research Meetings:
Students are expected to attend research meetings and to be fully engaged in the research culture.

Publications:
It is expected that students will write, submit, and publish articles.

Grant Proposals:
Students are expected to prepare a grant proposal for submission to a government funding agency. Eligible students are also required to write and submit a National Research Service Award (NRSA) proposal at the end of their third year. International students who are not eligible for federal grants are encouraged to work on submissions with faculty members.

Culminating Events:

Comprehensive Examination:
The comprehensive examination is taken at the end of the second year of study. Each student must propose and defend a major area paper in her/his proposed field of research. Upon passing the exam, students choose a faculty member from either the College of Liberal Arts or Fox School as their primary mentor.

Dissertation:
The doctoral dissertation is an original empirical study that makes a significant contribution to the field. It should expand the existing knowledge and demonstrate both the student's grasp of research methods and a mastery of her/his primary area of interest. Dissertations should be rigorously investigated; uphold the ethics and standards of the field; demonstrate an understanding of the relationship between the primary area of interest and the broader field of psychology; and be prepared for publication in a professional journal.

The Dissertation Examining Committee evaluates the student's dissertation and oral defense, including the student's ability to express verbally her/his research question, methodological approach, primary findings, and implications. The Dissertation Examining Committee consists of the Doctoral Advisory Committee plus at least three additional doctorally prepared individuals. The majority of the individuals on the Committee must be members of the Temple University Graduate Faculty. The Dissertation Examining Committee votes to pass or fail the dissertation and the defense at the conclusion of the public presentation.

If a student needs to change a member of either the Doctoral Advisory Committee or the Dissertation Examining Committee, the new member must be approved by the Departmental Chair and registered with the department's Graduate Secretary and the Graduate School.

Students who are preparing to defend their dissertation should confirm a time and date with their Dissertation Examining Committee and register with the Graduate Secretary at least 15 days before the defense is to be scheduled. The Graduate Secretary arranges the time, date, and room within two working days, and forwards to the student the appropriate forms.

After the Graduate Secretary has arranged the time, date, and room for the defense, the student must send to the Graduate School a completed 'Announcement of Dissertation Defense' form, found in TUportal under the Tools tab within “University Forms,” at least 10 working days before the defense. The Department posts announcements of the defense, and the Graduate School lists the defense on its website.

Contacts

Department Web Address:
https://www.cla.temple.edu/psychology/graduate/

Department Information:
Dept. of Psychology
Submission Address for Application Materials:
https://www.cla.temple.edu/interfolio/decision-neuroscience-phd

Submission Address for Official Electronic Transcripts:
lmduffie@temple.edu

Submission Address for Official Paper Transcripts:
Lauren McDuffie, Graduate Coordinator
Neuroscience Programs
1701 N. 13th Street, 659 Weiss Hall (265-67)
Philadelphia, PA 19122-6085

Department Contacts:
Director of Graduate Studies:
Dr. Deborah Drabick
deborah.drabick@temple.edu
215-204-0957

Chairperson:
Dr. Peter Marshall
peter.marshall@temple.edu
215-204-7360

Courses

PSY 5003. Advanced Statistics. 3 Credit Hours.
This course is primarily meant to prepare master's-level psychology students to conduct statistical analyses on data related to their research, and to prepare them for more advanced courses, such as multivariate statistics (PSY 8031). Topics will include linear regression, repeated-measures ANOVA, multi-factorial ANOVA, and several nonparametric alternatives to 'standard' inferential tests. In addition to significance testing, this course will focus on the measurement and interpretation of effect size and power. Students will also learn how to perform data analysis using the SPSS statistical software package.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 5100. Topics: Brain, Behavior and Cognition. 3 Credit Hours.
This graduate course is to be offered for graduate students interested in the topical course designated PSY 3100 but wish to work with the instructor to earn graduate credit.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 5103. Learning and Behavior Analysis. 3 Credit Hours.
A systematic introduction to the principles of behavior analysis with emphasis on their application as well as their origins in basic research.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.
PSY 5104. Ethics and Ethical Conflicts in Psychological Science. 3 Credit Hours.
Psychologists are bound by an official code of conduct that includes general ethical principles, as well as specific enforceable standards for ethical conduct in research, education and training, public service, and clinical practice. This course will use a case study approach with fine-grained analyses of ethical conflicts to learn and understand the ethical standards set forth in the American Psychological Association’s *Ethical Principles of Psychologists and Code of Conduct* (APA, 2010). We will consider both historical and recent cases of ethical misconduct in research, the concept of evidence-based treatment, and newly emerging ethical dilemmas in the field of cognitive neuroscience and imaging. Case studies and discussions will include ethical conduct relevant for graduate students.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:**
(PSY 5791|Minimum Grade of B|May not be taken concurrently)
AND (PSY 5891|Minimum Grade of B|May not be taken concurrently)

PSY 5151. Motivation. 3 Credit Hours.
The course entails hands-on experience in the shaping of behavior through differential reinforcement, several field trips to sites where behavioral principles provide the basis for serving individuals with special needs (e.g., closed-head injury, autism, aggressive, and self-injurious behavior), as well as individual projects on behavior of personal concern to the course participants.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

PSY 5791. Master’s Directed Research I. 1 to 4 Credit Hour.
This course is open to students in the first year of the Master of Science in Psychological Research program.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

PSY 5891. Master’s Directed Research II. 1 to 4 Credit Hour.
This course is open to students in the first year of the Master of Science in Psychological Research program.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

PSY 8005. Affective Neuroscience. 3 Credit Hours.
The brain is not just a thinking machine; it is also a feeling machine. This course explores the neural substrates behind emotions such as love, trust, fear, and pleasure. We will also discuss the relationship between emotions and cognition, the effect of emotions on animal and human behavior, and the biological basis of affective disorders such as anxiety and depression.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

PSY 8011. Graduate Statistics I. 3 Credit Hours.
Review of hypothesis-testing methods for means, variances, correlations, and proportions. One-way ANOVA for completely randomized, blocked, and repeated measure designs. Planned and post hoc multiple comparisons.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

PSY 8012. Core Course in History and Systems of Psychology. 3 Credit Hours.
An historical and conceptual analysis of the principle ideas and movements that have contributed to fundamental theoretical and methodological features of contemporary psychology.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.
PSY 8015. Teaching of Psychology. 0 to 1 Credit Hours.
Required of all graduate teaching assistants during their first semester of teaching. Designed to assist and prepare them for their teaching duties. Supervision and feedback are used to promote effective communication and teaching skills.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

PSY 8016. Professional Development Seminar. 2 Credit Hours.
This course is taken concurrently with PSY 8015, the Professional Development Seminar Series (PDS). The course will provide in-depth coverage of issues introduced at PDS seminars and roundtables, along with supporting activities and discussions relevant to students working towards the MS degree in Psychological Research. Students engage in structured written exercises that reinforce necessary professional skills, including preparation of CVs, abstracts for conference presentations, peer review of manuscripts, and grant writing. The major project in this course will be preparation of a draft for a National Science Foundation Graduate Research Fellowship application.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Co-requisites: PSY 8015.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:
(PSY 5003|Minimum Grade of B|May not be taken concurrently)
AND (PSY 5791|Minimum Grade of B|May not be taken concurrently)
AND (PSY 5891|Minimum Grade of B|May not be taken concurrently)

PSY 8017. Professional Issues for Psychology Careers. 0 or 1 Credit Hours.
This course provides first-year Psychology PhD students and 4+1 Psychology students in their Masters year with an introduction to graduate school and to the profession of psychology. It comprises the first half of a one-year sequence in professional development. The full sequence includes this course each Fall and Teaching of Psychology (PSY 8015) that is offered each Spring semester. These courses are designed to provide graduate students with information that most faculty have learned only through direct (and not always successful!) experiences. Academic psychology has both explicit and implicit (i.e., tacit) knowledge and rules that underlie the success of individuals in the system. The formalized rules and knowledge are available and relatively easy to acquire; the tacit knowledge is harder to discern and, thus, to acquire. Graduate advisors mentor students to prepare them for successful postgraduate careers, and each program in the department emphasizes the development of particular skills. However, some topics are better addressed through a class environment. By helping to demystify the academic path, this course will place the preparation for successful post-graduate careers at the beginning, rather than the end, of our graduate program.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8021. Graduate Statistics II. 3 Credit Hours.
Multiway ANOVA for completely randomized and repeated measures, nested designs, covariance designs. Simple effects and planned and post hoc comparisons. Use of available statistical computer programs.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:
PSY 8011|Minimum Grade of B|May not be taken concurrently.

PSY 8031. Survey of Multivariate Techniques. 3 Credit Hours.
Beginning with bivariate correlation and regression, generalizations are made, through the aid of matrix algebra, to multiple regression and correlation. Multivariate techniques also include principal components, canonical correlation, and multivariate analysis of variance use of available statistical programs.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:
PSY 8011|May not be taken concurrently.
PSY 8032. Structural Equation Modeling. 3 Credit Hours.
This graduate course overviews the application of structural equation modeling to various analysis problems confronted throughout the social, behavioral, and health sciences. Topics will include confirmatory factor analysis, measurement and structural models, path analysis, mediation, latent growth modeling, assessing model fit, and implementation of methods in statistical software.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:
PSY 8021|May not be taken concurrently.

PSY 8033. Hierarchical Linear Modeling. 3 Credit Hours.
Usually, this takes the form of individuals nested in bounded social organizations (e.g., students nested in schools or residents nested in neighborhoods), speaking to issues of social influence that the social sciences endeavor to address. This course will introduce students to HLM techniques, with a focus on practical applications of HLM. The course will focus on HLM applications to single continuous outcomes—analyzing the effects of context on individual outcomes and analyzing longitudinal data. HLM for binary outcomes and multivariate situations (multiple dependent variables) and (time allowing) HLM for cross-nested designs will also be covered.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:
PSY 8021|May not be taken concurrently.

PSY 8041. Factor Analysis and Scaling. 3 Credit Hours.
Factor analysis covers exploratory and confirmatory methods, estimation procedures, factor transformations, as well as extensions and applications of the factor model. Scaling covers the laws of comparative and categorical judgment, goodness-of-fit tests, metric and nonmetric multidimensional scaling, and clustering methods.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:
PSY 8031|May not be taken concurrently.

PSY 8051. Focused Analysis of Research Data. 3 Credit Hours.
An examination of focused methods of primary and secondary data analysis, taught within the conceptual framework of meta-analysis. Particular emphasis is given to the use of contrasts, indices of effect size, confidence intervals, simple graphical methods, etc., in confirmatory and exploratory data analysis.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:
(PSY 8011|May not be taken concurrently
AND PSY 8021|May not be taken concurrently)

PSY 8110. Topical Seminars in Experimental Psychology. 3 Credit Hours.
Examination of different topics within experimental psychology, varied from semester to semester.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8120. Topical Seminars in Experimental Psychology. 3 Credit Hours.
Examination of different topics within experimental psychology, varied from semester to semester.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.
PSY 8130. Topical Seminars in Physiological Psychology. 3 Credit Hours.
Topics vary from semester to semester.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8210. Topical Seminars in Learning. 3 Credit Hours.
Topics vary from semester to semester.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8212. Core Course in Learning and Behavioral Analysis. 3 Credit Hours.
An examination of the fundamental concepts in learning and behavioral analysis.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credits.

PSY 8310. Topical Seminar in Cognitive Psychology. 3 Credit Hours.
Topics vary from semester to semester. Students may repeat this course.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8312. Core Course in Cognitive Psychology. 3 Credit Hours.
Review of theory and research in the areas of memory, language, and thinking.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8410. Multicultural Issues in Clinical Psychology. 3 Credit Hours.
Topics such as depression, sexuality, neuropsychology, death and dying, stress, impulsivity, specialized treatment approaches, and others are varied from semester to semester according to programmatic needs.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8411. Cognitive-Behavioral Therapies. 3 Credit Hours.
Surveys cognitive-behavioral approaches to the treatment of the major classes of mental, behavioral and emotional disorders. Emphasis is placed on cognitive-behavioral models and case formulation as well as empirical evaluation of the relevant cognitive-behavioral treatment outcome literature.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8412. Core Course in Psychopathology. 3 Credit Hours.
The course will review concepts, theory, and research in psychopathology. Behavioral, cognitive, interpersonal, psychodynamic, sociocultural, genetic, and biological/neuroscience aspects of psychopathology will be covered as appropriate, depending on the disorder. The course will emphasize descriptive psychopathology (e.g. phenomenology, epidemiology, course of disorder) and issues of etiology, rather than treatment, although some work on treatment will also be discussed. The major goals of the course are knowledge of the nature of various mental disorders and what is known about their causes and risk factors, an appreciation of important issues in psychopathology, and development of the ability to think clearly and critically about these issues.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.
PSY 8413. Psychological Assessment I. 3 Credit Hours.
A year-long course; surveys concepts of intelligence and teaches the administration, scoring, and interpretation of individually administered tests. The evaluation of learning disabilities and neuropsychological disorders is also covered. Surveys the diagnostic system of mental disorders. Teaches the administration, scoring, and interpretation of projective tests and other procedures used to identify and understand clinical dynamics.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8420. Topical Seminars in Clinical Psychology. 3 Credit Hours.
Topics such as depression, sexuality, neuropsychology, death and dying, stress, impulsivity, specialized treatment approaches, and others are varied from semester to semester according to programmatic needs.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8423. Psychological Assessment II. 3 Credit Hours.
A year-long course; surveys concepts of intelligence and teaches the administration, scoring, and interpretation of individually administered tests. The evaluation of learning disabilities and neuropsychological disorders is also covered. Surveys the diagnostic system of mental disorders. Teaches the administration, scoring, and interpretation of projective tests and other procedures used to identify and understand clinical dynamics.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8430. Topical Seminars in Clinical Psychology IV. 3 Credit Hours.
Topics such as depression, sexuality, neuropsychology, death and dying, stress, impulsivity, specialized treatment approaches, and others are varied from semester to semester according to programmatic needs.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8433. Clinical Psychology: Scientific and Professional Dimensions. 3 Credit Hours.
History, ethics, research and service methodologies, psychometrics, and topical discussions pertinent to the relationships between psychological science and the practice of clinical psychology.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8453. Personality and Psychotherapy. 3 Credit Hours.
An examination of Freudian/Modern psychoanalytic and existential theories and their application to personality, psychopathology and treatment.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8481. Social, Cognitive, and Developmental Aspects of Behavior. 3 Credit Hours.
This is a general graduate level survey course that will include three 5-week evaluated education experiences (EEE’s) focusing on each of (a) social aspects of behavior (b) cognitive aspects of behavior and (c) developmental aspects of behavior. The social EEE will include topics such as group processes, attributions, discrimination and attitudes. The developmental EEE will include topics such as transitions, growth, and development across an individual’s life. The cognitive EEE will include topics such as learning, memory, thought processes, and decision-making. As a part of each EEE, students will be assigned primary readings of classic articles in the area as well as recent research findings. This course is designed to meet the American Psychological Association requirements for discipline specific knowledge in social, cognitive, and developmental aspects of behavior.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.
PSY 8510. Topical Seminar in Developmental Psychology I to IV. 3 Credit Hours.
In different semesters these courses focus on topics such as aging, adolescence, infancy, language development, learning and memory development, perceptual development, and theories of development.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8512. Core Course in Developmental Psychology. 3 Credit Hours.
Consideration of theories and related research on human development.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8513. Cognitive Development. 3 Credit Hours.
Theories of cognitive development (including Piaget, Werner, information processing) and exploration of issues and research generated by these theories. Includes consideration of sensory-motor, perceptual, language, memory, and conceptual development.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:
PSY 8512|May not be taken concurrently.

PSY 8610. Topical Seminar in Organizational-Social. 3 Credit Hours.
Topics selected depend on the current emphasis in the field and interests of the students. A student may repeat this course.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8612. Core Course in Social Psychology. 3 Credit Hours.
A survey of theoretical foundations and the substantive and methodological issues of social psychology.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 8613. Advanced Social Psychology. 3 Credit Hours.
Topics selected depend on the current emphases in the field and interests of the students. A student may repeat this course.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 8712. Core Course in Behavioral Neuroscience. 3 Credit Hours.
An examination of brain-behavior relationships in the context of evolution.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 9183. Readings in Psychology. 3 Credit Hours.
A post-master's advanced tutorial course.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.
PSY 9187. Clinical Practicum. 3 Credit Hours.
Under the auspices of the Psychological Services Center, students work with a different faculty member for each of four semesters. Each semester will emphasize either a different client population or a different orientation to the assessment and treatment of child, family, and adult disorders. Faculty assignments and the focus of group supervision vary from semester to semester.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Psychology.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 9283. Readings in Psychology. 1 to 3 Credit Hour.
A post-master's advanced tutorial course.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 9287. Clinical Practicum. 3 Credit Hours.
Under the auspices of the Psychological Services Center, students work with a different faculty member for each of four semesters. Each semester will emphasize either a different client population or a different orientation to the assessment and treatment of child, family, and adult disorders. Faculty assignments and the focus of group supervision vary from semester to semester.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Psychology.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 9287. Clinical Practicum. 3 Credit Hours.
Under the auspices of the Psychological Services Center, students work with a different faculty member for each of four semesters. Each semester will emphasize either a different client population or a different orientation to the assessment and treatment of child, family, and adult disorders. Faculty assignments and the focus of group supervision vary from semester to semester.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Psychology.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 9387. Clinical Practicum. 3 Credit Hours.
Under the auspices of the Psychological Services Center, students work with a different faculty member for each of four semesters. Each semester will emphasize either a different client population or a different orientation to the assessment and treatment of child, family, and adult disorders. Faculty assignments and the focus of group supervision vary from semester to semester.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Psychology.
Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 9411. Clinical Research Methodology. 3 Credit Hours.
Focuses on design issues and major methodological problems in research on such topics as psychotherapy outcome, characteristics of diagnostic groups, and stress in families. Particular attention is given to internal and external validity threats, advantages and disadvantages of assessment methods, principles of test construction, challenges and alternatives to traditional research methods, single subject designs, and approaches to integrating clinical research and practice.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may not be repeated for additional credits.

PSY 9485. Ph.D. Internship Course. 1 to 6 Credit Hour.
For clinical students only who are on internship.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.

PSY 9487. Clinical Practicum. 3 Credit Hours.
Under the auspices of the Psychological Services Center, students work with a different faculty member for each of four semesters. Each semester will emphasize either a different client population or a different orientation to the assessment and treatment of child, family, and adult disorders. Faculty assignments and the focus of group supervision vary from semester to semester.

Level Registration Restrictions: Must be enrolled in one of the following Levels: Graduate.

Repeatability: This course may be repeated for additional credit.
PSY 9587. Clinical Practicum. 3 Credit Hours.
Under the auspices of the Psychological Services Center, students work with a different faculty member for each of four semesters. Each semester will emphasize either a different client population or a different orientation to the assessment and treatment of child, family, and adult disorders. Faculty assignments and the focus of group supervision vary from semester to semester.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

PSY 9987. Assessment Practicum. 3 Credit Hours.
The assessment practicum is designed to provide clinical students in-depth training in comprehensive psychological/neuropsychological assessment. Under the auspices of the Psychological Services Center, students work with a faculty member who is a licensed psychologist for two semesters conducting psychological assessments. Integration of test results and other sources of information (e.g., interview, medical history, informant reports, etc.) will be emphasized. Additionally, the assessment practicum will focus on generating recommendations based on the psychological/neuropsychological assessment and communicating results to clients and referral sources.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:**
(PSY 8413|Minimum Grade of B-|May not be taken concurrently)
AND (PSY 8423|Minimum Grade of B-|May not be taken concurrently)

PSY 9991. Research. 1 to 6 Credit Hour.
Intended to meet the needs of students who desire to carry on an individual investigation while working for the master's degree.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

PSY 9994. Preliminary Examination Preparation. 1 to 6 Credit Hour.
Preparation for the preliminary examination.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

PSY 9998. Pre-Dissertation Research. 1 to 6 Credit Hour.
Independent research for the dissertation proposal. Registration each semester required until approval and elevation to candidacy.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

PSY 9999. Ph.D. Dissertation Research. 1 to 6 Credit Hour.
After passing the preliminary examinations and having an approved proposal, Ph.D. students must register each semester for this course until the completion of the dissertation.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.
**Student Attribute Restrictions:** Must be enrolled in one of the following Student Attributes: Dissertation Writing Student.

**Repeatability:** This course may be repeated for additional credit.