DARTMOUTH
Department of Psychological and Brain Sciences

Graduate Course Offerings 2021-2022

All courses are 1 credit unless otherwise noted; PBS graduate students **must** enroll in a total of at least **3 credits per term** including at least one credit of research.

FALL 2021

PSYC 100. Proseminar (all faculty)
An introduction to the research program of PBS Faculty. Taken by students in their first year.

PSYC 164. Computational Methods (Haxby)
This course will review current computational methods for understanding how information is coded in neural activity and how to decode patterns of neural activity to reveal the information that is being represented and processed. The course will cover topics such as multivariate pattern classification, representational similarity analysis, forward encoding models, and using hyper alignment to build common models of representational and connectivity spaces. The course will concentrate on applications to human functional neuroimaging data, but application to other methods of measuring neural activity in humans and animals will also be covered.

PSYC 700. Grad Student Ethics Course (Clark)
Required course for all Cognitive Neuroscience and Psychological & Brain Sciences graduate students. Generally, consists of five two-hour sessions as well as additional reading and preparation.

WINTER 2022

PSYC 110. Measurement and Statistics I (Wolford)
First section of Graduate level statistics. Taken by students in their first or second year.

PSYC 162. Human Electrophysiology Lab (HEL) (Stoermer)
The goal of this course is to provide an introduction to the methodology of human electroencephalogram (EEG), including event-related potentials (ERPs), oscillatory activity, and steady-state visual evoked potentials (SSVEPs). The course will provide theoretical background on these methods, as well as hands-on experience: we will design our own EEG experiment, record EEG data in the lab, and analyze it together; including data preprocessing (artifact rejection, filtering), computing ERPs, and oscillatory activity. Finally, the class will also cover how to present EEG/ERP data and interpret ERP components, oscillations, and SSVEPs.

(WINTER 2022 continued)

PSYC 175. Current Topics in Behavioral Neuroscience (Smith)
This course will explore historical and modern accounts of reward and motivation. We will also address what role these processes could play in addictions and what aspects of addiction might involve other processes. Equal focus will be paid to behavioral and neural components. The course will emphasize research using small animal models to understand them. Students will become familiar with broadly applicable concepts and research methods used in the behavioral neuroscience of reward and motivation.

SPRING 2022

PSYC 111. Measurement and Statistics II (Wolford)
Second term of Graduate level statistics. Typically taken by PBS students in their first or second year.

PSYC 160. Imaging Methods (Chang)
How can we understand how the brain works? This course provides an introduction to in vivo neuroimaging in humans using functional magnetic resonance imaging (fMRI). The goal of the class is to introduce: (1) how the scanner generates data, (2) how psychological states can be probed in the scanner, and (3) how this data can be processed and analyzed. Students will be expected to analyze brain imaging data using the opensource Python programming language. We will be using several packages such as numpy, matplotlib, nibabel, nilearn, fmriprep, pybids, and nltools. We will cover the basics of signal processing, and how we can make inferences using the general linear model. We will also introduce more advanced analysis techniques such as prediction/classification, representational similarity analysis, and intersubject correlations.

PSC 179. Neurobiology of Navigation and Spatial Orientation (Taube)

RESEARCH AND TEACHING COURSES

These courses are offered every term.

PSYC 115. Supervised Teaching (1 credit): Taken while performing a TA.

PSYC 117. Specialist Requirement (1 credit): Taken while doing specialist reading and written exam, usually not awarded a grade until completed (so 'ON' appears in the grade column until exam is completed and graded).

PSYC 118. **Research Presentation (1 credit):** Taken in the spring term of the second year while completing the second-year research presentation.

PSYC 168. Experiential Learning
The goal of this course is to provide students with practical training through a full-time internship outside of Dartmouth College. This real-world, hands-on experience will expose students to diverse career opportunities during graduate school and give students a chance to engage with a field of interest, related to their doctoral research, prior to completion of their PhD.
For this course, the student will propose and arrange a paid or unpaid internship in an existing enterprise (industry, government, or other) in consultation with their Thesis Advisor (primary mentor) and the PBS Graduate Committee. This process should happen in advance of the term of enrollment. Course enrollment is concurrent with the internship and should be for a period of one term. At the end of the internship, the student will make an oral presentation to the PBS community (faculty, post-doctoral fellows, graduate students, and others who may be interested) that addresses the nature of the enterprise they were engaged in, the problem they were assigned, and the results and impact of their project. The purpose of the presentation is to share lessons learned from the internship experience with the PBS community. The presentation will be accompanied by a short but complete written report. Neither the presentation nor report should contain confidential information of the enterprise.
This course is considered a methods course, carries two credits, and can fulfill one of the elective course requirements for the PhD degree. Students may enroll in the course no more than once. Students holding F-1 sponsorship should consult with the Office of Visa and Immigration Services (OVIS). Students engaged in paid internships will not receive a graduate student stipend during the term of the internship.
Prerequisites: This course is generally open to students in their second-fourth year in the program (i.e. after completion of their first three terms and prior to proposing their dissertation). Instructor permission is required and will be granted once the PBS Graduate Committee approves of the student's internship proposal.

PSYC 188 (1 credit), 288 (2 credits), 388 (3 credits). Graduate Research: All active students must take at least one research credit every term.

HOW TO CHOOSE THE CORRECT RESEARCH COURSE

Remember that you must be enrolled for 3 total credits per term to be considered 'active'. If you are not sure about courses, check with Julia Abraham.

If you are enrolling in full time research (i.e. not taking any seminars, teaching assistantships, or specialist reading courses), enroll in PSYC 388 (3 credits). If you are enrolling in 1 seminar course as well as conducting research, enroll in PSYC 288 (2 credits). If you are enrolling in 2 courses as well as doing research, enroll in PSYC 188 (1 credit). You should be enrolled in at least 1 credit of research every term.

Example 1: you are a first year student taking the proseminar and doing research: you will sign up for PSYC 100 and PSYC 288.

Example 2: you are TA'ing a course, taking a Special Topics Seminar, and doing research: you will sign up for PSYC 115, PSYC 179, and PSYC 188.

Example 3: you are taking no courses, you are not TA'ing, and you are not working on your specialist requirement; you are only participating in research for the term: you will sign up only for PSYC 388.

COURSES OFFERED BY OTHER DEPARTMENTS AND PROGRAMS

If there is a course offered by another department, which you would like to take for PBS grad program credit, please contact the Chair of the Graduate Committee to request approval before taking the course.