PSYCHOLOGY DEPARTMENT
FALL 2012
Graduate Course Descriptions

Rooms and times on this list SUPERSEDE the printed course schedule.
Course call numbers are in brackets **{ }**. If you are not a Psychology graduate student, instructor's consent is required to enroll in **ANY** of these courses. Please see individual instructors **before** enrolling in their courses.

GENERAL

PSYC 5541 SPECIAL TOPICS/PSYCHOINFORMATICS
Dr. Yarkoni
{32246} 001 3:00-5:30 M MUEN D424
An introduction to the application and development of informatics methods in psychology. Reviews computational tools and techniques for acquiring, organizing, synthesizing, and reporting psychological data. Topics to be covered include: novel methods for lab-based, online, and real-world data collection; development of psychological databases and ontologies; techniques for large-scale data mining and visualization; and new approaches to publishing and evaluating psychological research. Project building and concrete application are emphasized; over the duration of the course, students will develop a project that applies the knowledge and skills they have gained to open research problems within their own area of interest.

PSYC 5741 GENERAL STATISTICS
Dr. Carey

{14461}	**100**	**3:30-4:45**	**TR**	**MUEN E113**
{14462}	**L101**	**1:30-3:25**	**R**	**MUEN E311**
{14464}	**L102**	**11:00-12:50**	**R**	**MUEN E311**

NEUROSCIENCE

NRSC 5100 INTRO TO NEUROSCIENCE I
Dr. Barth

{14357}	**801**	**2 credits-need only attend Friday class**		
{14836}	**820**	**5 credits (must attend NRSC 5052 also)**		
		10:00-11:40	**F**	**MUEN D156**
		9:30-10:45	**TR**	**HUMN 135**
{14837}	**L821**	**12:00-1:50**	**F**	**MUEN E0022**
{14838}	**L822**	**2:00-3:50**	**F**	**MUEN E0022**
{14839}	**L823**	**12:00-1:50**	**W**	**MUEN E0022**
{14840}	**L824**	**2:00-3:50**	**W**	**MUEN E0022**

This course is designed to provide an intensive introduction to the principles of neuroscience. It initially covers the detailed neuroanatomy of human forebrain, midbrain, hindbrain and spinal cord. This is followed by neurophysiology with a concentration on the electrophysiology of neural systems. The basics of neuroanatomy and neurophysiology are then applied to an examination of the structure and function of visual, auditory, and sensorimotor systems in animal and man. All beginning graduate students enrolled in NRSC 5100 for 5 credit hours must simultaneously attend all lectures for Behavioral Neuroscience (NRSC/PSYC 5052), although not officially enroll in it. This combination permits a presentation of the material balanced between lecture and seminar formats. Given the time commitments imposed by the breadth and depth of the subject matter, students are advised to take a minimum number of credit hours during the semester they enroll in this course. On rare occasions, more advanced students entering the program may petition to enroll only in the 2 credit hour seminar portion of NRSC 5100.

Any students considering petitioning for the 2 credit seminar section should contact Dr. Daniel Barth (MUEN E420, 492-0359, dbarth@psych.colorado.edu) prior to enrollment.

NRSC 6100 ADVANCES IN NEUROSCIENCE
Dr. Spencer
{14319} 001 3:30-5:15 T MUEN E214

This course is intended to supplement and enhance the learning experience derived from attending the Interdepartmental Neuroscience Seminar Series on the University of Boulder Campus. The week prior to each Seminar Talk we will discuss research articles and other background information relevant to the upcoming Talk. Since Seminar Talks are scheduled every other week from 4-5 PM on Tuesdays, the class will meet on alternate weeks from 3:30-5:15PM on Tuesdays. For most out of town speakers there will be additional opportunities for students to meet with the seminar speaker during their visit. Students will be expected to attend each Seminar Talk as well as the class meetings. This course should provide an excellent opportunity to become more familiar with a wide range of research methodologies and topics of investigation for Neuroscientists both locally and nationally.

NRSC 5032 NEUROBIOLOGY OF LEARNING AND MEMORY
Dr. Rudy
{18904} 001 9:30-10:45 TR HLMS 211

The study of learning and memory now belongs to scientists trained in a variety of disciplines that include psychology biochemistry, cellular–molecular biology, electrophysiology, neuroanatomy, and neuropsychology. This upper level course integrates some of what we have learned from this exploding interdisciplinary approach into a framework that can be understood by students who have a rudimentary background in psychology, biology, and neuroscience. The course tells three stories. It progresses from the study of neurons, synapses, and molecules that provide the basic infrastructure of memories, to the neural systems that capture the rich content of our experience. The first story is organized around the central idea that synapses, points of connection between neurons, are memory storage units that can be modified by experience. You will learn what happens to your synapse when a memory is created. The second story is about the how cellular and molecular processes identified from studies of synaptic plasticity participate in making memories from behavioral experiences. The third story takes a broader view and is organized around what is sometimes called the multiple memory systems view—that the

brain contains different neural systems that have evolved to capture the various content contained in our experiences. For each story, a premium is placed on maintaining a level of description and discussion that is needed to ensure a basic understanding of the relevant principles and processes, without getting to a level of detail that is tedious.

NRSC 5052 BEHAVIORAL NEUROSCIENCE
Dr. Barth

{27234}	**100**	**9:30-10:45**	**TR**	**HUMN 135**
{27235}	**L101**	**12:00-1:50**	**F**	**MUEN E0022**
{27236}	**L102**	**2:00-3:50**	**F**	**MUEN E0022**
{27237}	**L103**	**12:00-1:50**	**W**	**MUEN E0022**
{27238}	**L104**	**2:00-3:50**	**W**	**MUEN E0022**

Same as PSYC 5052

NRSC 5072 CLINICAL NEUROSCIENCE
Dr. Agnew

{18902}	**001**	**1:00-1:50**	**MWF**	**MUEN E417**

NRSC 5132 NEUROPHARMACOLOGY
Dr. Bachtell

{14755}	**001**	**2:00-3:15**	**TR**	**MUEN E417**

BIOLOGICAL

PSYC 5052 BEHAVIORAL NEUROSCIENCE
Dr. Barth

{21625}	**100**	**9:30-10:45**	**TR**	**HUMN 135**
{21626}	**L101**	**12:00-1:50**	**F**	**MUEN E0022**
{21627}	**L102**	**2:00-3:50**	**F**	**MUEN E0022**
{21628}	**L103**	**12:00-1:50**	**W**	**MUEN E0022**
{21629}	**L104**	**2:00-3:50**	**W**	**MUEN E0022**

Same as NRSC 5052

PSYC 5082 SEMINAR: RECOVERY FUNCTION/BRAIN DAMAGE
Traumatic brain injury (TBI) from neuron to behavior
Dr. Hernandez

{30332}	**801**	**2:00-3:40**	**M**	**MUEN D317**

Advances in our understanding of TBI have progressed extremely rapidly in the past 5-10 years. Reasons for this will be discussed including TBI in high profile populations (military, athletes), new methods for rapid detection, assessment, neuroimaging and treatments. Beginning at the neural level and continuing through to the behaving organism (animal model and human survivor), this course will provide a comprehensive and detailed overview of this important topic.

PSYC 5102 BEHAVIORAL GENETICS
Dr. Carey
{17254} 001 TBA

This is an introductory course on behavioral genetics for graduate students. The course objectives are: 1. understand how basic principles of genetics can be used in the study of behavior, 2. learn about the variety of methods that can be used to determine how genes and environment influence behavior, and 3. learn from recent examples of studies using these methods. Topics covered include a review of genetics, twin and adoption studies, univariate and multivariate behavior genetic studies, gene-environment correlation, gene-environment interaction, environmental influences, linkage, and association. This course is required for students in the behavior genetics program and students completing Institute for Behavioral Genetics' interdisciplinary certificate program. Other students who are interested in the course objectives are encouraged to enroll. There is not a prerequisite for this course.

PSYC 5242 BIOMETRIC METHODS/BEHAVIORAL GENETICS
Dr. Stallings
{26030} 001 9:30-12:00 W IBG 210

This course is intended to provide basic knowledge of biometrical genetics as it is applied to the analysis of quantitative phenotypes in experimental populations and in human twin and family studies—those designs most widely employed in behavior genetics. The focus will be on the development of models of quantitative inheritance and environmental influences and their application to empirical data. There will be an emphasis on the derivation of model expectations as well as the application of models to empirical data using available software. Course evaluation is based on weekly homework problems and the write up of a methods and results section of a paper utilizing methods covered in the course.

CLINICAL

PSYC 5433 ADULT PSYCHOPATHOLOGY
Dr. Mittal
{18826} 801 10:00-12:30 F MUEN D318

PSYC 5453 DEVELOPMENTAL PSYCHOPATHOLOGY
Dr. Willcutt
{28493} 801 11:30-2:00 T MUEN D318

PSYC 7663 INTELLECTUAL ASSESSMENT LAB
Dr. Richardson
{29872) 801 3:00-5:00 M MUEN D318
See description of PSYC 7683.

PSYC 7673 ADULT PSYCHOTHERAPY
Dr. Dimidjian
{28506} 801 11:30-2:00 TH MUEN D318

PSYC 7683 INTELLECTUAL ASSESSMENT
Dr. Richardson
{21588} 801 10:00-12:30 W MUEN D318
This course is restricted to clinical psychology graduate students in their second and third year of training. This course will provide an overview of adult intellectual and cognitive assessment followed by practicum training on the Wechsler and neuropsychological tests with both undergraduate volunteers as well as clinic cases. The format of the course will include lecture and discussion as well as practical hands-on training in the administration and interpretation of the WAIS-IV and other commonly used cognitive tests. This is a 4 credit hour course.

PSYC 7713 CLINICAL PRACTICUM
Dr. Weatherley
801 TBA
Dr. Dimidjian
802 TBA
(see Shelley to enroll in practicum)

COGNITIVE/EXPERIMENTAL

PSYC 5665 PROSEM-ADV EXPERIMENTAL PSYCHOLOGY
Dr. Harvey
(28507) 001 11:00-12:40 T MUEN D156

PSYC 5685 PROSEM- RESEARCH METHODS
Dr. Healy
{16756} 001 1:00-2:50 W MUEN D156
This is one module of the six-module cognitive psychology proseminar sequence that all the graduate students in the Cognitive Psychology program are required to take. It is also available to graduate students in other programs and other cognitive science departments. The main topic of this module is research methods in cognitive psychology, with an emphasis on experimental methods. This proseminar is designed primarily to help new graduate students get started with their first-year research project and emphasizes the skills and knowledge necessary for them to (a) critically evaluate existing research and (b) design, conduct, analyze, and write up experimental studies of their own in cognitive psychology.

PSYC 7215 FMRI DATA ANALYSIS
Dr. Wager
{16661} 001 3:00-5:30 W MUEN E311
Human functional neuroimaging, including functional magnetic resonance imaging (fMRI), positron emission tomography (PET), and high-resolution electroencephalographic and

magnetoencephalographic techniques, is becoming a cornerstone of biologically based approaches to the study of mind/brain phenomena. One of the most important applications of human functional neuroimaging is the ability to provide converging evidence about participants' likely mental states. Brain-based prediction of mental states can provide new information about the nature of mind-brain relationships, and it also has practical implications for assessing mental states when participants cannot accurately report them, when there are no equivalent reportable or behavioral outcomes, and when self-reports are suspect.

For these reasons, there has been an explosion of interest in multivariate analysis techniques that can provide accurate and interpretable predictions of mental states. This course will provide students with background on and experience working with both standard and emerging multivariate prediction and classification methods. The course focuses on application to fMRI data in particular. As we review techniques throughout the course, we will first review the theory and mathematical foundations of the techniques, and then apply them to several fMRI datasets. The practical focus will help students gain practical experience and understand the ways in which the techniques can be applied and the boundary conditions that limit their usefulness. Some techniques covered include principal components analysis, independent components analysis, partial least squares, modern regression techniques (regularized regression, LASSO, elastic nets, and Gaussian process regression), and classification methods (support vector machines, relevance vector machines). These techniques are expected to be useful outside of the field of neuroimaging analysis as well, e.g., for genetic association data. The course will make extensive use of Matlab software, and prior programming experience in Matlab and/or other languages (R, S+, C++) is recommended. A solid foundation in statistics and regression is also recommended.

PSYC 7415 COG SCI RSRCH PRACTICUM 1
Dr. Sumner
{12309} 001 9:30-11:30 F MUEN D424

Same as LING 7415, CSCI 7412, PHIL 7415, and EDUC 6506. Independent, interdisciplinary research project in cognitive science for advanced graduate students pursuing a joint Ph.D. in an approved core discipline and cognitive science. Research projects will integrate at least two areas within the cognitive sciences, e.g., Psychology, Computer Science, Linguistics and Education. This course is the first semester of a two-semester course required for the joint Ph.D. in cognitive science. Students will need to get commitments from two mentors for their project.

PSYC 7425 COG SCI RSRCH PRACTICUM 2
Dr. Sumner
{12283} 801 9:30-11:30 F MUEN D424

Same as LING 7425, CSCI 7422, PHIL 7425, and EDUC 6516. Independent, interdisciplinary research project in cognitive science for advanced graduate students pursuing a joint Ph.D. in an approved core discipline and cognitive science. Research projects will integrate at least two areas within the cognitive sciences, e.g., Psychology, Computer Science, Linguistics and Education. This is the second semester of a two-semester course required for the joint Ph.D. in cognitive science. Students will need to get commitments from two mentors for their project.

PSYC 7775 TOPICS IN COGNITIVE SCIENCE

Dr. Sumner
{12315} 001 12:00-2:00 F MUEN D430
Readings of interdisciplinary innovative theories and methodologies of cognitive science. Students participate in the ICS Distinguished Speakers series that hosts internationally recognized cognitive scientists who share and discuss their current research. Session discussions include analysis of leading edge and controversial new approaches in cognitive science. Restricted to students enrolled in ICS Cognitive Science Academic Programs. Same as LING 7775, CSCI 7772, EDUC 7775, SLHS 7775, and PHIL 7810.

SOCIAL

PSYC 5606 PROSEM-SOC/PERSON PSYC
Dr. Ito, Dr. Judd, Dr. Park
{14595} 801 1:00-3:30 W MUEN E214
This course designed for social psychology graduate students will provide an introduction to advanced methodological issues in social psychology. The course will be team taught by Tiffany Ito, Bernadette Park, and Chick Judd. Ito will provide an introduction to social neuroscience methods, focusing on the technical and inferential issues associated with selected measures. Park will explore a number of data analytic techniques that all focus on decomposition of variance in a dataset including the Social Relations Model, Cronbach's accuracy decomposition, and "Trees", a method for understanding variance decomposition in ANOVA and Regression and how these two approaches to data analysis map perfectly on to one another. Judd will begin with a focus on principles of measurement in social psychology, including issues of reliability and construct validity. This will include basics in exploratory and confirmatory factor analyses. You will then cover an introduction to mixed models, focusing in particular on hierarchical models as well as on models with crossed random effects.

PSYC 6606 PROFESSIONAL ISSUES
Dr. Van Boven
{18430} 001 12:00-12:50 W MUEN E214

PSYC 7536 SEM: PERSONALITY/SOCIAL
Dr. Park
{14395} 801 1:00-3:30 M MUEN E214