Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional

1. This request is submitted by the Department of [Psychology]

2. Course prefix, number and complete title of course: [PSYC 645 - Methods Human Neuroscience]

3. Course description (not more than 50 words):

   Provides overview of the principles, theories, and applications of human neuroscience methods, such as electrophysiology, event-related potentials, electromyography, hormones, functional neuroimaging.

4. Prerequisite(s): [Permission of the instructor]

5. Is this a variable credit course? □ Yes □ No. If yes, from _____ to _____.

6. Is this a repeatable course? □ Yes □ No. If yes, this course may be taken _____ times. Will the course be repeated within the same semester/term? □ Yes □ No.

7. Has this course been taught as a 289/489/689? □ Yes □ No. If yes, how many times? ______. Indicate the number of students enrolled for each academic period it was taught. ______.

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course #</th>
<th>Title (excluding punctuation)</th>
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<tbody>
<tr>
<td>PSYC</td>
<td>645</td>
<td>METHODS HUMAN NEUROSCIENCE</td>
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<tr>
<th>Lab.</th>
<th>SCH</th>
<th>Subjct. Matter Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>BSE Code</th>
<th>Level</th>
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Approval recommended by: ____________________________ Date: 7-23-08

Head of Department Chair, College Review Committee

Head of Department (if cross-listed course) Date: 7-9-08

Dean of College

Submitted to Coordinating Board by: ____________________________ Date: 9/4/08

Dean of College

Director of Academic Support Services Date: Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8836.

OAR/AS - 04/07
Methods of Human Neuroscience

Instructor: Eddie Harmon-Jones
Class Meetings: Mondays 2-5pm, room 336 psychology
Office Hours: by appointment
Contact Info: Psychology Bldg. 218; 845-9524; eddiehj@gmail.com

Required Readings:

Other readings are listed below and will be available as PDFs provided by instructor.

Course Description
This course will provide an overview of the principles, theory, and applications of human neuroscience assessment. The course will provide an introduction to theory and research in major areas of human neuroscience methods with a particular emphasis on physiological substrates of cognition, affect, and psychopathology; and provide an introduction to laboratory techniques and methodological principles in human neuroscience methods. The course will involve a combination of lecture, discussion, demonstrations, and laboratory exercises. You will get more out of the course if you ask questions as they arise.

Learning Objectives

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<tr>
<th>Objective</th>
<th>Instructional Activities</th>
<th>Assessment</th>
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<tr>
<td>Identify basics of electricity</td>
<td>Lecture, Readings</td>
<td>Exam 1</td>
</tr>
<tr>
<td>Evaluate published research using human neuroscience</td>
<td>Lecture, Group discussion</td>
<td>Exam 2</td>
</tr>
<tr>
<td>Collect, process and analyze human neuroscience data</td>
<td>Laboratory activity</td>
<td>Final project paper</td>
</tr>
<tr>
<td>Identify research questions for which particular human neuroscience methods are appropriate</td>
<td>Lecture, Group activity</td>
<td>Proposal paper, oral presentation, final project paper</td>
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<tr>
<td>Design and conduct an experiment using human neuroscience methods</td>
<td>Group activity</td>
<td>Proposal paper, oral presentation, dmdx computer program, final project paper</td>
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Course Requirements and Grades
Course requirements include regular attendance, active participation in class discussion, and completion of all assignments and the course project.

For the Proposal Paper, you should write a 5-7 page paper (typed, double-spaced) that proposes an experiment that would test a novel hypothesis using neuroscience measure(s) on human subjects. The paper should include a short introduction that justifies your hypothesis and a full method section.

For the Oral Presentation, you should be prepared to give a 15-20 min oral presentation of the written proposal which was turned in the previous week. In addition, you will also turn in a stimulus control program (for dmdx or other software) that demonstrates your experimental paradigm. Your program will be graded based on whether it executes without error and captures the main features of your experimental task/paradigm.

After the oral presentations, the class will vote for which 2 proposals should be conducted in class. Two groups of students will be formed. You will be expected to participate in data collection (3 participants should be run), processing, and analysis of your group project. Each student will then submit a written description of the project. It will be due May 5.

Grades will be based on the electricity exam (10%), 5-7 page proposal paper (20%), oral presentation (20%), DMDX program (10%), course exam (20%), and final project paper (20%).
A = 90% and above; B = 80-89%; C = 70-79%; D = 60-69%; F = below 60.

Americans with Disabilities Act (ADA) Policy Statement
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.

Academic Integrity Statement
"An Aggie does not lie, cheat, or steal or tolerate those who do." The complete university Honor Council Rules and Procedures regarding academic integrity may be found on the web at [http://www.tamu.edu/beaconhonor](http://www.tamu.edu/beaconhonor)

COURSE SCHEDULE
The schedule is provisional. The rate of progress may be adjusted as necessary to ensure mastery of the material. Any changes in dates/content will be announced in class.
January 14
Introduction, Electricity, & Computers

January 21, No class, MLK holiday

January 28
Electroencephalography

February 4
EEG (continued)

February 11
Electromyography

February 18
Exam 1 on Electricity & Startle response


February 25
Startle Response, Post-Auricular Response, & Event-Related Potentials

March 3
Event related potentials (continued)

March 10 - No Class, Spring Break

March 17
Skin conductance & fMRI

March 24
Exam 2 - over lectures & readings

March 31
Student Proposal Presentations

April 7, 14, & 21
Labs, Data Collection, & Data Processing

April 28
Student Presentations of Research Projects Results
Regarding the question of whether there is a demand for the course:

"Methods of Human Neuroscience" is a proposed graduate course in psychology. It will be taught as an elective, but should attract students from most area groups within psychology. Also, most area groups within psychology require students to take two out-of-area courses, and this course should satisfy that requirement for most areas.

Human neuroscience methods are being increasingly used in psychological research, in studies of cognition, emotion, motivation, and social and developmental processes. These methods are also being widely used within clinical psychology. The recent formation of the undergraduate neuroscience minor reflects the growth of their sub-area of psychology.

"Methods of Human Neuroscience" was recently taught as a 689 course and 5 students were enrolled, one from cognitive, one from social, two from behavioral neuroscience, and one from the vet school. The course was evaluated positively by the students (overall mean 4.76 on 5-point scale), so future students are likely to enroll in it.