Psych 360: Laboratory in Cognitive Neuroscience

Fall 2017
Wednesday 12:45 – 2:15
Prof. Rebecca Compton

Examines methodologies used to study the neural basis of higher mental functions in humans. Students will gain hands-on experience with electrophysiological (EEG/ERP) recording methods and will develop projects using ERP methods to address questions about cognitive functioning.

Week	Date	Time	Location	Activity	Assignment
1	9/6	R = regular	S510	Overview/organization	
2	9/13	R	S510	Introduction to EEG/ERP methods and issues	Read Banich excerpts and Luck 2012
3	9/20	S = split	S510	Cap application	Read Luck Ch. 5 and cap application documents
4	9/27	R	H204	E-prime tutorial #1	E-prime exercise #1 (complete in class) **Proposals due by 5pm on Fri 9/29**
5	10/4	S	S510	Discuss project proposals	Read group members' proposals
6	10/11	S	S510	Plan projects	Reading: TBA Quiz #1 (self-scheduled)
-------- FALL BREAK ----------					
7	10/25	S	S510	Plan/finalize projects	Cap application review with TA (outside class)
8	11/1	R	H204	E-prime tutorial #2 Data collection	
9	11/8	no meeting		Data collection	E-prime exercise #2 due by class time on 11/8
10	11/15	no meeting		Data collection	Data collection must be completed by end of day Monday 11/20
11	11/22	(no meeting-- day before Thanksgiving)			
12	11/29	R	H204	Data analysis (overview)	
13	12/6	S	H204	Data analysis	Quiz #2 (self-scheduled)
14	12/13	R	S510	Project presentations	
		Final paper (lab report) due by end of exam period, noon on Friday 12/22			

Note: in some weeks, the class will be split into two groups that meet at different times (TBD based on students' availability). The "split" weeks are designated by "S" in the Time column. In all other weeks (R for "regular") all students are expected to attend at the regularly scheduled time.

Course Requirements and Grading:

20 pts Research proposal (due by 5pm on 9/29)
20 pts Quizzes (2 @10 pts each)
15 pts E-prime exercises
35 pts Lab report (due by noon on 12/22)
10 pts Participation/effort (including group presentation, 12/13)

1. Research proposal

Your assignment is to write a 5-page proposal for a study to be carried out in the lab class using ERP methods. Your proposal will be read by the professor and by the other students in your group. Your group will then discuss the proposals of the group members and will select and develop one study for your group to actually carry out. Your proposal must be uploaded to the Moodle site by 5pm Friday Sept. 29.

Your proposal should refer to prior existing studies to provide background and motivation for the question your study aims to address. Your proposed study also needs to be feasible for the lab class. Ideally it should require only 15-20 participants, and preferably should involve a within-subjects design (each participant contributes to multiple conditions in the design). An ideal design is both creative and simple. You should spell out as many details of the proposed method as possible. (What will the task and stimuli be? What sites will you record from? Etc.) Also make sure that it's clear what hypothesis your proposed study would test.

2. Quizzes

Two short quizzes will assess your comprehension of issues in EEG/ERP methodology and analysis. The quizzes will be self-scheduled (on your own time) during the weeks listed in the schedule.

3. E-Prime Exercises

E-Prime is a software program for presenting visual and auditory stimuli and collecting participants' responses. You will be expected to gain some basic familiarity with E-prime via a tutorial lab exercise (5 pts), as well as a second exercise based on your group's project (10 pts). The purpose is to demystify E-prime and to give you a sense of its capabilities.

4. Lab Report

Each student is required to write a paper reporting the study that student's group carried out. The lab report should be written in APA style, including abstract, introduction, methods, results, discussion, reference list, and figures (where appropriate). The lab report is due at the end of the final exam period and should be handed in as a hard copy. No extensions will be given except in cases of catastrophic personal or family emergency.

5. Participation/Effort

Effective group lab work requires that each student make a contribution. This includes both intellectual contributions, such as helping to brainstorm ideas for the group project, and "good citizen" contributions, such as running your fair share of participants and helping to keep the lab clean and organized for others to use. Participation/effort will also be evaluated in the group project presentation scheduled for 12/13.