

Psych 360: Laboratory in Cognitive Neuroscience

Fall 2006

Wednesday 12:30-2:00

Prof. Rebecca Compton

Course description:

Examines major 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. The course will also examine methodological issues in hemodynamic neuroimaging.

WC= whole class meets together

SG= meet in small groups for lab work

BB= reading available on Blackboard

Course schedule:

| Date | Topic | Assignment |
|-------------------|--|---------------------------------------|
| Sept. 6 | Introduction (WC) | |
| Sept. 13 | Overview of ERP methods and issues (WC) | Luck, Ch. 1 (BB) |
| Sept. 20 | Practice cap application/acquire sample data (SG) | Luck Ch. 3 (BB) Bentin (BB) |
| Sept. 27 | Practice cap application/acquire sample data (SG) | Research proposal Due 9/29 |
| Oct. 4 | Plan research projects (SG) | Reading: proposals from group members |
| Oct. 11 | Plan research projects (SG) | |
| FALL BREAK | | |
| Oct. 25 | Data collection for projects (SG) | |
| Nov. 1 | Data collection for projects (SG) | |
| Nov. 8 | Data collection for projects (SG) | |
| Nov. 15 | Data analysis (WC) | |
| Nov. 22 | No meeting (week of Thanksgiving) | |
| Nov. 29 | Data analysis (WC/SG) | |
| Dec. 6 | Hemodynamic Brain Imaging Methods (WC) <i>Guest Lecturer: Dr. Geoff Aguirre, Penn</i> | Aguirre (BB) |
| Dec. 13 | Project presentations (WC) | |

Lab report due by end of finals period (5pm on December 22).

Course Requirements and Grading:

20% Research proposal (due by Sept. 29)

20% Group project presentation (Dec. 13)

40% Lab report (due by Dec. 22)

20% Participation/effort

Research proposal

Your assignment is to write a 2-3 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 small 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 should refer to prior existing studies (see folder of readings on BB) to provide background and motivation for the question your study aims to address. Your proposed study needs to be something feasible to be done in the lab class. Ideally it should require 10 or fewer participants, and preferably should involve a within-subjects design (each participant contributes to multiple conditions in the design). Feel free to be creative, but keep the design 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.) Your proposal should be dropped in the “Psych 360” folder within Compton’s “public read-write” folder on the storage server by 5pm on Friday September 29.

Group project presentation

Each group will present the results of their study in an oral presentation delivered to the rest of the class on Wednesday, December 13. The presentation should, in approximately 15 minutes, present the research question, methodology, results, and conclusions from the study. Each member of the group is expected to participate in the oral presentation.

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.

Participation/Effort

Effective group lab work requires that each student makes a contribution. Contributions include 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.