

Psych 360: Laboratory in Cognitive Neuroscience

Fall 2019

Mondays 12:45 – 2:15

Prof. Rebecca Compton

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Course Overview:

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 and implement projects using ERP methods to address questions about cognition.

Course Objectives:

- Practice skills in brainstorming and developing project ideas
- Increase fluency with key concepts in experimental design and statistics
- Gain experience in working hands-on with human research participants
- Gain experience, confidence, and skill in working with specialized technology and software
- Gain appreciation for challenges in connecting physiological and psychological constructs

General Guidelines and Expectations:

- Because this is a once-a-week class that will move rapidly, students are expected to attend each class period. If an absence is unavoidable (e.g., illness), please contact the professor as soon as possible.
- Because the course has varied activities from week to week, the meeting time and place will change from week to week. For example, in some weeks the class will meet in split groups, with half the class meeting at one time and half the class meeting at another, to facilitate group work. The course schedule on this syllabus lays out the meeting times and places in detail. Please follow the course schedule diligently to avoid confusion.
- Assignments are due as listed on the course schedule, with exceptions granted only in exceptional cases (e.g., medical emergency).
- If you are having difficulty with the course, please do not hesitate to contact the professor, either by email or by signing up for a slot in the professor's office hours.

Course Requirements and Grading:

- 20 pts Research proposal (due by 5pm on 9/26)
- 20 pts Quizzes (2 @10 pts each)
- 15 pts E-prime exercises
- 15 pts First draft of project intro/methods (due in class on 11/18)
- 30 pts Final lab report (due by noon on 12/20)
- 10 pts Participation/effort

110 pts TOTAL

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. More details about the proposal will be available on Moodle.

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 an APA-style paper reporting the study that student's group carried out. A draft of the introduction and methods will be due in-class on 11/18. The professor will provide feedback on this draft. A final version of the paper, including abstract, introduction, methods, results, discussion, reference list, and figures (where appropriate) is due at the end of the final exam period.

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 12/9.

Course Schedule

Week	Date	Time	Location	Activity	Assignment
1	9/4	(Labor Day makeup)	Stokes 004	Overview/organization	
2	9/9	R = regular	Sharpless 510	Introduction to EEG/ERP methods and issues	Read EEG pocket guide and Luck 2012
3	9/16	S = split	Sharpless 510	Cap application	Read Luck Ch. 5 and cap application documents
4	9/23	R	Hilles 204	E-prime tutorial #1	E-prime exercise #1 (in class) Proposals due by 5pm on Thurs 9/26
5	9/30	S	Sharpless 510	Discuss project proposals	Read group members' proposals
6	10/7	S	Sharpless 510	Plan projects	Reading: TBA Quiz #1 (self-scheduled)
----- FALL BREAK -----					
7	10/21	S	Sharpless 510	Finalize projects	Cap application review with TA (outside class)
8	10/28	R	Hilles 204	E-prime tutorial #2; Data collection	
9	11/4	no meeting		Data collection	E-prime exercise #2 due by class time on 11/4
10	11/11	no meeting		Data collection	Data collection must be completed by end of day Sunday 11/17
11	11/18	R	Sharpless 510	Data analysis (overview)	First draft of intro/methods due in class
12	11/25	S	Stokes 004	Data analysis in groups	
13	12/2	S	Stokes 004	Data analysis in groups	Quiz #2 (self-scheduled)
14	12/9	R	Sharpless 510	Project presentations	
		Final paper (lab report) due by end of exam period, noon on Friday 12/20			

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.