Psych 340 – LAB IN COGNITION: HUMAN ELECTROPHYSIOLOGY
Spring 2016
Professor Mara Breen; @ProfessorBreen
Office: Reese 207B
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Office Hours: Thursday, 10am-12pm, or by appt
Class Hours: Tuesday, 1:15-4:05 PM
Location: Reese 301/129

COURSE DESCRIPTION
This course surveys the theory and practice of using recordings of electrical activity of the brain to study aspects of human cognition. Lectures will describe how event-related brain potentials (ERPs) have been used to address issues related to language, memory, attention, and perception, and students will gain experience critically reading and evaluating research reports in this area. Students will also learn how to collect, process, statistically analyze, and interpret ERP data through the completion of group research projects.

The first few class meetings will be devoted to an overview of the ERP method as a tool for studying human cognition and choosing group projects (I will have some suggestions, though you may also come up with your own.) After you have a topic, you will spend the remainder of the semester conducting an experimental investigation of your topic. You will do the background research, design the study, create the necessary stimuli, collect data from multiple subjects, analyze the data, and write up the results. Each week, we will work through these steps, and by the end of the semester you will complete both oral and written presentations of your work.

This course will require a considerable amount of work outside of class meeting times. Please be prepared to spend up to six hours per week on this course outside of class meetings.

COURSE OBJECTIVES
Knowledge:
• Understand how event-related potentials are recorded and analyzed
• Understand the variety of ways in which event-related potentials can be used to study human cognition
• Explore the details of one area of event-related potential research on cognition

Skills
• Conduct experimental research
  o Propose your own hypothesis based on existing literature
  o Design a method appropriate for testing your hypothesis
  o Collect data and statistically analyze your results
  o Interpret your results in the context of others’ work

PSYCHOLOGY DEPT GOALS
• Think analytically and critically by questioning assumptions, evaluating evidence, and articulating well-reasoned arguments.
• Acquire depth, methodological expertise, and historical understanding in a discipline.
• Develop the ability to write and speak confidently and effectively.
• Learn practices of self-assessment and reflection for academic, personal, and career growth.
• Learn about the field of psychology, intersections among sub-fields, interdisciplinary nature of the field, and connections among theory, research, and practice.
• Develop skills as a coherent and articulate writer and speaker.
• Encounter different points of view and analyze underlying assumptions, theoretical frameworks, and validity of empirical evidence.
• Learn to read primary sources of psychological research, understand the difference between lay and academic psychology, and be a critical consumer of psychological theories and research.
• Understand how psychological questions and research may reflect gender, race, and social class biases; learn to interact effectively with people from racial/ethnic/cultural and social class backgrounds different from your own.
• Engage in innovative ways of applying psychological theory and research to critical social issues and policy.
• Learn how psychology may be useful to your personal life and future career.

RESOURCES
Textbook:

Other useful text (available in Reese 129):

ATTENDANCE
Attendance is mandatory. You are expected to come to class prepared and on time. You may not miss more than one Tuesday class. Missing more than one class will result in a failing grade.

LAB NOTEBOOK
Throughout the semester, you will be required to keep a lab notebook. You’ll use this notebook to keep track of what you’ve done on your project, and to communicate with your group members. Lab notebooks will be kept on Google Drive. We will talk more about this in class.

ORAL PROJECT PRESENTATION
On the last day of class, your group will present your findings to the class. You should prepare a presentation describing your study:

1. Use PowerPoint, Keynote, OpenOffice, or Prezi for your presentation.
2. Present your points as bullet points, which are short, but complete, sentences.
3. Include Introduction, Method, Results and Discussion
4. Cite all relevant literature

FINAL PAPER
Each group is required to submit a final paper, in APA format, describing their study.

GROUPS
Group assignments will be reviewed and returned quickly with written comments and suggestions and I expect that groups will address comments and respond to questions in subsequent assignments. It is expected that each student be actively involved in the research tasks and complete her share of the work. The success of each research project depends on the efforts of each individual. Each group is responsible for dividing tasks equitably among group members.

GROUP EVALUATIONS
Each student will submit group evaluations. These evaluations will be used to assess the progress of each research group. The evaluations you receive from your fellow group members (and from yourself) will comprise 10% of your final grade.
GRADING ALGORITHM
Here is the formula that will form the basis for your grade:

- Group Grade: 10%
- Participation: 5%
- Lab Notebook: 10%
- Article Summary: 5%
- Summary of 4 articles: 10%
- 1 page project proposal: 10%
- ERP component presentation: 10%

Paper drafts:
- Short Intro: 2%
- Long Intro: 3%
- Methods section: 3%
- Results section: 2%

Final paper: 20%
Final project presentation: 10%

ACCOMMODATION
If you require accommodation for a disability, you need to provide the appropriate documentation from AccessAbility Services: https://www.mtholyoke.edu/accessability. Please provide this documentation within the first 2 weeks of class, and plan to speak with me after class about how we can best make the accommodations.

ACADEMIC HONESTY
It is expected that you will abide by the College’s honor code throughout this course. Any student found to be in violation of the honor code will be reported to the dean of the College and could receive a failing grade for the class. For more information on the College’s honor code, consult the student handbook.

Plagiarism will not be tolerated. That is, all work you submit must be your own. When in doubt about whether to attribute an idea to someone, do it. It is always better to over-cite than to fail to cite someone. This tutorial will instruct you about the proper use of sources: http://www.mtholyoke.edu/lits/ris/Plagiarism/What_is_plag.htm

CLASSROOM CIVILITY
I expect that everyone will strive to maintain a mutually respectful classroom environment that is conducive to learning and the open exchange of ideas. To this end, I ask that you arrive on-time and prepared for class. Moreover, I ask that you refrain from using personal electronic devices for anything that is not class-related. Texting, Messaging, Facebooking, shopping, etc. are disrespectful not only to me, but also to your fellow students, and I won’t tolerate these activities in the classroom.

GRADE CALCULATION
Grades will be rounded to the nearest whole number, and assigned a letter as follows:

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Assignments to be turned in on Moodle:

1. Article summary – 1/26
2. Summary of 3 articles – 2/2
3. ERP Component slides – 2/9
4. 1 page project proposal – 2/16
5. 2-3 page Introduction – 3/1
6. 4-5 page Introduction – 3/22
7. Methods section – 3/29
8. Results section – 4/12
9. Final Presentation slides – 4/15