LIN4930/6932 PSYCHOLINGUISTICS AND EEG

Time: Tuesday 8:30AM-11:30AM
Classroom: Matherly 108

Instructors: *@Dr. Eleonora Rossi*
Office: 4127 Turlington Hall, eleonora.rossi@ufl.edu

Office Hours: *By email appointment.*

Course rationale and objectives:

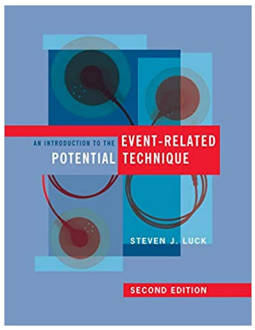
In this course, you will learn the bases of electroencephalography (EEG) and its applications to understand human cognition, and in particular how language is processed by the human brain, both for speakers of one language alone, and for speakers who live their lives with more than one language. The course will include both in person theory classes supplemented with some state-of-the-art online material, and hands-on training to learn how to collect EEG data from human subjects and understand the bases of EEG analysis. This course will provide students with key theoretical and practical skills that will be foundational for anyone who is interested in developing future research in neuroscience.

Course website:

Course materials (lecture notes, syllabus, etc.) and exercises will be made available on the course website on E-learning (elearning.ufl.edu). Current **deadlines and grades** will also be posted on the website. You are responsible for checking the site regularly and for letting the instructor know promptly if anything is unclear, or if your grade has been entered incorrectly.

Course readings:

Required:



https://lucklab.ucdavis.edu/blog/2022/5/4/new-book

Other important resources

https://courses.erpinfo.org/courses/Intro-to-ERPs

PURSUE WEBSITE: *https://pursue.richmond.edu/*
ERP BOOTCAMP*: https://erpinfo.org/*
THE BRAIN ATLAS: http://www.helpthereisabraininmyhead.com/brain-atlas
Video lectures on Canvas

Assessment:	***% of course grade***
• Online theory Quizzes + assignments	20%
• In class assignment (2)	20%
• Paper presentation and discussion	30%
• Active participation	10%
• Final paper	20%

The course **grading** scale is:

92-100 = A	89-91.9 = A-	86-88.9 = B+	82-85.9 = B
79-81.9 = B-	76-78.9 = C+	72-75.9 = C	69-71.9 = C-
66-68.9 = D+	62-65.9 = D	58-61.9 = D-	Below 58 = E

For UF grading policies for assigning grade points, see:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Details of assessments

Homework Assignments: Homework assignments will be made available on the course website about a week before they are due, and need to be turned within the due date.

In-class EEG training: All the hands-on EEG training will be compulsory. You will *receive information in class.*

Final research presentation: For the research part of this course, you will be split into two small teams. Each team will be involved in collecting some data for a project, and will conduct some basic -cleaning and pre-processing inn EEG-. During the final presentation, each team will present the preliminary data results (and the experience during testing) that you accrued during the semester.

Covid statement:

In response to COVID-19, the following recommendations are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

· If you are not vaccinated, get vaccinated. Vaccines are readily available and have been demonstrated to be safe and effective against the COVID-19 virus. Visit one.uf for screening / testing and vaccination opportunities.

· If you are sick, stay home. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 to be evaluated.

· Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.

Policy on working together: You are more than welcome to work together on homework assignments and the EEG training and testing,

Late policy and attendance: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Incorrect grades: It is your own responsibility to keep track of whether your grade has been entered correctly. If you think a grade for an assignment or test is missing or incorrect, please contact the instructor promptly.

Respect for others: Students are expected to behave in a manner that is respectful to the instructor and to fellow students. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all.

Accommodations for students with disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Health and wellness: If you or a friend is in distress, please contact umatter@ufl.edu or 352-392-1575 so that a U Matter We Care team member can reach out to the student in distress. In case of emergency, call 9-1-1.

Course evaluations: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Schedule: *The following schedule is an estimate of the course's progress, with readings for the given week and approximate dates. The red dates designate the EEG LAB days, and days in which you may test (after the first half of the semester.*
****Please regularly consult the schedule on the course website for updates.*****

Dates	Topic	Readings/Assignment(s)
25 Aug.	Introductions	"Getting to know you"
30 Aug.	-Introduction to psycho-neurolinguistics -Introduction to neuroimaging methods	Chapter 1 Luck
1 Sep.	-History of EEG	
6 Sep.	-Physiological bases of EEG (THEORY)	Chapter 2 Luck -Jackson et al., 2014
8 Sep.	-Physiological bases of EEG (THEORY CONT.)	Chapter 2 Luck -Cohen, 2017
13 Sep.	-The ERP language components: General	-Chapter 3 Luck -Chapter 15 Luck and Kappenman
15 Sep.	-The ERP language components: General Cont.	Kaan, E. (2007). Event-related potentials and language processing: A brief overview. *Language and linguistics compass*, *1*(6), 571-591. Beres, A. M. (2017). Time is of the essence: A review of electroencephalography (EEG) and event-related brain potentials (ERPs) in language research. *Applied psychophysiology and biofeedback*, *42*(4), 247-255.
27 Sep.	-Phonological processing intro	TBA
29 Sep.	-Phonological processing intro electrified	TBA
4 Oct.		
6 Oct.	**No Class Dr. Rossi at SNL**	Watch PURSUE CAPPING VIDEO ONLINE
11 Oct.	-Lexicosemantic processing (intro)	Kutas, M., & Hillyard, S. A. (1980). Event-related brain potentials to semantically inappropriate and surprisingly large words. *Biological psychology*, *11*(2), 99-116.
13 Oct.	-Lexicosemantic processing electrified	Kutas, M., & Hillyard, S. A. (1984). Brain potentials during reading reflect word expectancy and semantic association. *Nature*, *307*(5947), 161-163. Kutas, M., & Federmeier, K. D. (2011). Thirty years and counting: Finding meaning in the N400 component of the event related brain potential (ERP). *Annual review of psychology*, *62*, 621.
18 Oct.	-Morphosyntactic processing (intro)	Osterhout, L., & Holcomb, P. J. (1992). Event-related brain potentials elicited by syntactic anomaly. *Journal of memory and language*, *31*(6), 785-806.

20 Oct.	-Morphosyntactic processing electrified - P600 vs N400?	Delogu, F., Brouwer, H., & Crocker, M. W. (2019). Event-related potentials index lexical retrieval (N400) and integration (P600) during language comprehension. Brain and cognition, 135, 103569.
25 Oct.	-EEG training. Capping and cleaning 1	
27 Oct.	*-EEG training. Capping and cleaning 3*	
1 Nov.	-EEG experiments and design (for ERPs) - Watch Dr. De Luca video intro to EEG and Design -Watch Dr. Yanina Prystauka-Intro to Experimental Design Video	Boudewyn, M. A., Luck, S. J., Farrens, J. L., & Kappenman, E. S. (2018). How many trials does it take to get a significant ERP effect? It depends. *Psychophysiology*, *55*(6), e13049.
3 Nov.		- Watch Dr. Jorge González-Alonso Video
8 Nov.	-EEG experiments and design (for ERPs cont.	-Chapter 4 supplement Luck on ERP designs
10 Nov.		
15 Nov.	EEG and TFR in language processing	Prystauka, Y., & Lewis, A. G. (2019). The power of neural oscillations to inform sentence comprehension: A linguistic perspective. *Language and Linguistics Compass*, *13*(9), e12347. Rossi, E., Pereira Soares, S., Prystauka, Y., Nakamura M., & Rothman, J. (in press). Riding the (brain) waves! Using neural oscillations to inform bilingualism research. *Bilingualism, Language and Cognition.*
17 Nov.	Intro to bilingual language processing	Desmet, T., & Duyck, W. (2007). Bilingual language processing. *Language and linguistics compass*, *1*(3), 168-194.
22 Nov.	Bilingual language processing electrified	Moreno, E. M., Rodríguez-Fornells, A., & Laine, M. (2008). Event-related potentials (ERPs) in the study of bilingual language processing. *Journal of Neurolinguistics*, *21*(6), 477-508. Tolentino, L. C., & Tokowicz, N. (2011). Across languages, space, and time: A review of the role of cross-language similarity in L2 (morpho) syntactic processing as revealed by fMRI and ERP methods. *Studies in Second Language Acquisition*, *33*(1), 91-125.
24 Nov.	**NO CLASS THANKSGIVING**	**NO CLASS THANKSGIVING**
29 Nov.	-SIMULATION EEG DATA ANALYSIS 2	-Luck EEG online data analysis book
1 Dec.	-SIMULATION EEG DATA ANALYSIS	-Luck EEG online data analysis book
6 Dec.	-Conclusions and bye!	