LING646: Cognitive Neuroscience of Language
Fall 2017

**Time:** Mo-We 10:30 – 11:45  
**Place:** 1108B Marie Mount Hall  
**Instructor:** Ellen Lau  
**Email:** ellenlau@umd.edu  
**Office:** MMH 3416  
**Office hours:** by appt.

**Course website:** [http://ling.umd.edu/~ellenlau/courses/ling646/LING646_F17.html](http://ling.umd.edu/~ellenlau/courses/ling646/LING646_F17.html)

This course provides an introduction to cognitive neuroscience language (CNL) research. CNL research is defined by its methods rather than its questions. Some CNL research uses neuroscience methods as another set of tools alongside behavioral and computational methods to contribute to **cognitive models** of linguistic knowledge, comprehension, and production. We'll do a lot of this in the first part of the course. Some CNL research asks additionally or instead about how this knowledge and/or these processes are **neurally implemented**. We'll do a lot of this in the second part of the course.

In Fall 2017, I will be trying a partial reboot of this course, slightly shifting it a bit from the ‘survey’ to the ‘seminar’ direction. We will cover less content so that we can go deeper. I will ask you to do fewer data analysis exercises, but I will ask for more thoughtful theoretical analysis in the reading responses. My hope is that these changes will give you the skills to reason independently in whatever your area of interest within CNL, even if we don’t end up covering that area in this course. Specifically, the goals are that you:

- Understand how behavioral and neural data independently complement and inform theories of linguistic knowledge and processing (one no better than the other)
- Understand how theories of the neural measures themselves impact how they can be used as evidence for theories of linguistic knowledge and processing
- Have a basic grasp on how data from central CNL techniques are generated (EEG, MEG, MRI, fMRI, aphasia)
- Know how to do basic sanity checks on neural data reported in the literature to quickly evaluate how seriously to take them
- Be able to work through the logic of a neural localization question to determine if it is sound or not
- Have a working familiarity with the classic canon of language ERP/MEG responses
- Have a working familiarity with standard aphasia syndromes
- Have a working familiarity with the best-replicated language fMRI localizations
- Be able to determine when a research question is best answered with CNL methods and when it is not
- End up with the confidence to be able to cut through the BS that often proliferates in this area, even if you are not a CNL practitioner yourself

For better or worse, cognitive neuroscience methods are increasingly fashionable within cognitive science, and the results of this research are increasingly influential. Therefore a deeper technical understanding of these methods is likely to be of great help even for students who do not anticipate using them in their own research.

**Materials**

The schedule of readings, links to the articles, and supplementary readings is maintained on the course website [ling.umd.edu/~ellenlau/courses/ling646/LING646_F17.html](http://ling.umd.edu/~ellenlau/courses/ling646/LING646_F17.html) (not Canvas!). This schedule is subject to change. I am not requiring you to purchase a textbook this year, but I highly recommend that anybody interested in this area pick up David Kemmerer’s *Cognitive Neuroscience of Language* as a comprehensive reference.
Class Participation

If you don’t attend class, you won’t get much out of this course.

However, my pet peeve is surfing/working/checking email on your laptop/phone while other people are talking, so please don’t do it in my class. We all struggle with this issue, but life is too short to spend it somewhere else!

Coursework and Grading

50% - Reading responses and presenting on readings
10% - EEG lab exercise
30% - Group project
10% - Research proposal

The most intensive part of this course is reading the primary literature and providing thoughtful analysis. Readings are assigned for each class meeting, and you must submit a response on the Piazza discussion board by 9pm the night before. I will also ask everyone to pick two readings to lead class discussion on. As you’re planning for the semester, please build in plenty of time in your schedule for reading and analysis for this course.

To prepare you for the group project, I’ll ask you to do an EEG data analysis exercise early in the semester. The assignment can be easily completed on your personal computer if you have Matlab installed, and if not you can complete it using the ‘cephalopod’ computer in 3416 Marie Mount Hall. This computer can also be easily accessed remotely from most Mac computers. The lab is designed to be fairly accessible for all levels of computer geekiness, but if you have less experience with experimental data analysis then you should make sure to start it early enough to have time to get help if you need it.

The hands-on component of the class is a group project in which you will collaboratively design, execute, analyze, and write up a pilot ERP experiment. The EEG lab is easily accessible in Marie Mount Hall, and our stimulus presentation software makes it relatively trivial to set up most kinds of experimental designs involving visual word presentation. Auditory presentation is also quite possible, with a bit more coding effort. Since you will be interacting with naïve participants, you’ll also need to obtain online human subjects training (if you don’t have it already).

Finally, you’ll turn in a preliminary research proposal at the end of the semester, and present it to your classmates. This is an opportunity to develop an experiment idea that you might actually be able to carry out.

General Policies

Late reading responses will not receive credit. Other assignments turned in late will be accepted only at the discretion of the instructor and will receive a 10% penalty per day late. This policy is designed to prevent graduate students from spending too much time on coursework and/or incurring incompletes.

Students are encouraged to work together on lab assignments and discuss readings outside of class, but are expected to write up their work independently.

Please don’t hesitate to contact me if you are having trouble with the lab assignments, the readings, or any other aspect of the course!
Attendance Policy

Religious holidays: The University of Maryland’s policy provides that students should not be penalized because of observances of their religious beliefs. Students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the student’s responsibility to inform the instructor of any intended absences for religious observances before the day to be missed.

Snow Policy: On days the university is closed due to inclement weather, class is cancelled. However, subsequent days will not be altered. For example: if there is a test on Friday, and school is cancelled on Thursday, the test will still be on Friday. It is up to you to email questions you have in preparation for the test.

Students with Disabilities

If you have a physical disability or a learning disability, it is your responsibility to bring it to my attention at the beginning of the course - before any exams or assignments are due. I will make every effort to accommodate your needs. If you require special accommodations for test-taking, you need to arrange for this at least one week before a scheduled exam, and then also remind me by email a day or two before the exam.

Academic Honesty:

We follow the University’s policies on academic honesty and will report any form of cheating according to these policies. Please review the terms and penalties of the Student Honor Council’s Code of Academic Integrity at: http://www.shc.umd.edu/code.html. According to this code plagiarism is defined as “intentionally or knowingly representing the words or ideas of another as one’s own in any academic exercise.” This is regarded as a form of academic dishonesty and suspected cases of plagiarism will be referred to the Honor Code for subsequent action. The grade of XF is listed on the transcripts of individuals found to have plagiarized work; this grade means an F was received because of academic dishonesty.”

You can learn a lot from working through problems with others, and for this reason collaboration is encouraged in this course. However, collaboration can only work effectively if you do so responsibly, and follow acceptable practices of academic honesty. If you work together, you should:

- Write up your assignment yourself. If you have edited or simply copied your friend's assignment, then you have not written up your assignment yourself.

- Don't hand in something that your collaborator came up with that you don't fully understand - this is plagiarism, and it is dishonest.

- If you work as part of a group, you must write this at the top of your assignment, and give the names of the people you worked with. If you fail to do this, it will be treated as plagiarism.

- If you are in any doubt, consult the University Policy on Academic Integrity. We treat cases of academic dishonesty seriously.