NACS642: Cognitive and Computational Neuroscience
Spring 2014

Time: Tu-Th 10 – 12
Place: Maryland Neuroimaging Center

Instructor: Ellen Lau
Office: MMH 3416
Email: ellenlau@umd.edu
Office hrs: by appt.

TA: Francisco Cervantes
Office: AVW 2269
Email: fcz@umd.edu
Office hrs: by appt.

Course website: http://ling.umd.edu/~ellenlau/courses/nacs642/NACS642_S14.html

Course description
This survey course provides an introduction to cognitive neuroscience. Cognitive neuroscience is a broad domain ‘at the intersection of cognitive science and neuroscience’. In practice, what distinguishes cognitive neuroscience research from other subdomains of cognitive science and neuroscience is a particular set of methods applied to a particular set of problems. In this course we will explore these methods and what they have taught us about human cognition. An important component of the course is hands-on experience with 3 critically different cognitive neuroscience methods: EEG, MEG and fMRI.

Course requirements and Grading
10% - Quizzes
10% - Lab assignment
15% - Class participation and debates
30% - Reading responses
35% - Group project

Materials
The textbook for the course is Principles of Cognitive Neuroscience, 2nd ed. by Purves et al. The 2nd edition is new and organized in a substantially different way from the 1st edition, so make sure that you get that one. The schedule of readings, links to the articles, and supplementary readings is maintained on the course website. This schedule is subject to change, so make sure to check it frequently.

Readings
Readings will be assigned for each class, both from the textbook and from the primary literature. Carefully reading the assigned reading is the most important part of this class. Textbook readings. Brief weekly quizzes will test your knowledge of the textbook readings. Primary literature. You will submit reading responses on the primary literature readings before the class where they are discussed—minimum one full paragraph. This is an opportunity to describe what you thought was important about the results, raise doubts or concerns about the arguments, and note questions that you had. Reading responses are due by 9pm the night before class. Bonus: if you additionally make a good reply to another student’s response, I'll give you a bonus point (max 5/semester).
Class participation
You must regularly attend class and participate in class discussion. My pet peeve is surfing/working on your laptop/phone while other people are talking, so please don’t do it in my class. Life is too short to spend it somewhere else!

Debates
Each student will participate in two brief, informal debates over an assigned reading. The instructor will decide whether you are ‘pro’ or ‘against’. The ‘pro’ side will argue why the study is very important, the ‘against’ side will argue why the study is critically flawed, and both sides may suggest follow-up studies if they wish. Each side will have a total of 10 minutes to argue their point (5-minute overview, 5-minute rebuttal) and may use whatever visual aids they prefer.

Group project
The lab assignment will involve dividing the class into three groups, each of which will implement the same experiment in one of three methodologies (EEG, MEG, and fMRI), and collect and analyze data from the same 3-4 subjects. Each group will put together a written experiment proposal prior to running the study and will present their results in class at the end of the semester. The computer lab at the MNC is equipped with high-powered computers that are available for neuroimaging data analysis, and you may also request remote access to the analysis computer in the MEG lab from Anna Namyst (amnamyst@umd.edu).

Lab assignment
In order to ensure that everyone feels comfortable helping out with the group project data analysis, you will be asked to complete one of 3 possible lab assignments—EEG, MEG, or fMRI—depending on which group you are in. You may complete your assignment on your own computer, one of the MNC computers, or the MEG analysis computer, as appropriate. If you have already done these assignments for me in LING646, come talk to me about an alternative.

General Policies
- Students are encouraged to work together on the lab assignment and discuss readings outside of class, but are expected to write up their work independently.
- Unless due to a documented personal emergency, late reading assignments will not be accepted, and other assignments will receive a 10% penalty for each day overdue.
- Please don’t hesitate to contact me if you are having trouble with any aspect of the course—sooner is always better than later.

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](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](http://www.shc.umd.edu/code.html). We treat cases of academic dishonesty seriously.