BRAIN AND LANGUAGE
LIN 4790-122C
SYLLABUS - FALL Semester 2015

Classroom & time: Tuesday 2+3rd periods, AND 19 (8:30-10:25am)
Thursday 3rd period, AND 19 (9:35-10:25am)

Instructor: Dr. Edith Kaan
Office: 4127 Turlington Hall.
Office Hours: Tuesday 10:40-12:35pm; Thursday 1:55-2:45pm, and by appointment
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Course description:
In this course, major issues and terminology in brain and language research will be introduced. Topics addressed include: brain imaging techniques, ERPs, lesion studies, auditory perception, categorization in the brain, localizationist versus generalist approaches, symbolist versus connectionist approaches, modularity, innateness, critical period, lateralization, plasticity, hemispheric differences. Students will be familiarized with important controversies related to these issues, and will learn to evaluate data from brain imaging research. In laboratory sessions and assignments, students will have the opportunity to focus in on a particular topic.

Objectives:
- To learn about central issues and terminology in brain and language research
- To learn to evaluate data from neurolinguistic and brain imaging studies
- To improve written and oral presentation skills

Prerequisite: LIN3010 or SPA4004

Course website:
- Course materials (reading, lecture notes, syllabus, etc) and exercises will be made available on the Canvas course website on E-learning (https://lss.at.ufl.edu/). You'll find the syllabus as well as some of the readings, and any handouts or other relevant materials. **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:
- Ward, Jamie (2015*). The student's guide to cognitive neuroscience*. **3rd edition**. Psychology Press. ISBN 978-1-84872-272-9. Available at the Reitz Union bookstore.
- Readings available on-line (through UFlib): (note: subject to change!)
    - Campbell, S. (2006). Language in the non-dominant hemisphere. In: K. Brown (Ed.) *The Encyclopedia of Language and Linguistics.* Elsevier. pp. 529-536
    - Gabrieli, J.D.E. (2009). Dyslexia: A new synergy between education and cognitive neuroscience. *Science, 325* 17 July 2009 (280-283).
    - Jung-Beeman, M. (2005). Bilateral brain processes for comprehending natural language. *Trends in Cognitive Sciences, 9*(11), 512-518.
    - Kaan, E. (2007). Event-Related Potentials and language processing: A brief overview. *Language and Linguistics Compass, 1*(6), 571-591.

- Kaan, E., & Swaab, T. Y. (2002). The neural circuitry of syntactic comprehension. *Trends in Cognitive Sciences, 6*(8), 350-356.
- Patterson, K., Nestor, P.J. & Rogers, T.T. (2007). Where do you know what you know? The representation of semantic knowledge in the human brain. *Nature Reviews Neuroscience, 8*, 976-987.
- Pinker, S., & Ullman, M. T. (2002). The past and future of the past tense. *Trends in Cognitive Sciences, 6*(11), 456-463.
- McCandliss, B. D., Cohen, L., & Dehaene, S. (2003). The visual word form area: expertise for reading in the fusiform gyrus. *Trends in Cognitive Sciences, 7*(7), 293-299. doi: http://dx.doi.org/10.1016/S1364-6613(03)00134-7
- McClelland, J. L., & Patterson, K. (2002). Rules or connections in past-tense inflections: what does the evidence rule out? *Trends in Cognitive Sciences, 6*(11), 465-472.

Requirements:

- Please bring your **laptop** or **tablet** to class, since we will be regularly doing assignments in class for which you need access to information posted on-line. These assignments serve as an extension of the materials covered by the lecture, and will allow students to focus on particular problems into more detail, and to get hands-on experience in using relevant internet sources and interpreting data from experiments.

- **Homework Assignments/Labs:** Some of the assignments made in class (lab), will need to be handed in, and will be graded. In addition, all homework assignments will be graded, unless indicated otherwise. Answers to lab and homework assignments are to be submitted through the course website *before* the start of the next class, unless indicated otherwise.

- **Tests:** Tests are non-cumulative and will test material covered in the lectures, labs and course readings. These exams will consist of short multiple-choice questions, and at least one essay question in which you will be asked to apply your knowledge to a new situation. Tests should always be submitted individually.

- **Final paper:** The final paper assignment should be carried out and handed in individually, although interactions among students are strongly encouraged. You can choose among the topics provided by the instructor later in the course, or choose your own topic in discussion with the instructor. For the final paper, you are requested to do a literature search, and find a few relevant journal articles, each discussing different points of view. The final paper should clearly summarize the main points and arguments (data) in favor of one position or the other and should conclude with your own stance, as well as suggestions for further experimentation. The paper should be double spaced and between 6 and 12 pages long, including references. It should be formatted according to APA guidelines, and submitted through the course website. At various points throughout the semester draft versions of this paper, or other assignments related to this paper need to be handed in.

- **Poster presentation:** The course is concluded with an individual poster presentation on the basis of your final paper project. The poster should clearly summarize the main points and arguments (brain imaging data) in favor of one position or the other and should conclude with your own stance, and suggestions for further experimentation. You will be graded on the quality of the poster and on the oral presentation of the poster during a poster session.

- **Participation in LIN/SLSH experiments.** *Before November 17!* To encourage awareness of different aspects of experimental research in language-related fields, you are required to participate in 2 hours of language or communication research during the semester. A list of experiments that qualify for this credit can be found at http://slhs.phhp.ufl.edu/student-info/participant-pool-2/**.** This site will be updated throughout the semester. Please retain a copy of the IRB form as proof that you participated. You need to have participated in 2 hours of experiments before November 17, 2015 for you to receive credit. This assignment will be worth 2% of your course grade. If you choose not to participate or do not qualify for any of the studies, you can receive the same amount of course credit for reading a short research article and writing a 2-page synopsis. This article needs to cover a brain and language topic, and cannot be one of the articles used for your final poster/paper assignment. This paper must be turned in no later than November 17, 2015. If you are currently enrolled in other classes that *require* participation in experiments, and your total participation requirement exceeds 4 hours this semester, please see the instructor.

Overall grade. The weighting of the various requirements in the final grade is

- Homework assignments /lab assignments: 13%
- Tests: 60% (20% each)
- Final paper, paper-related assignments, and poster presentation: 25%
- Participation in LIN/CSD experiments: 2%

The course grading scale is:

A = 90-100	B = 80-83.9	C = 70-73.9	D = 60-63.9
A- = 87-89.9	B- = 77-79.9	C- = 67-69.9	D- = 57-59.9
B+ = 84-86.9	C+ = 74-76.9	D+ = 64-66.9	E = < 56

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

Policies:

- Texting, emailing, web browsing, face-booking, chatting and other cell phone or computer activity is not allowed during class unless this is part of the course assignments.
- Students are required to hand in all assignments *before the beginning of the class period* they are due. Please contact the instructor *in advance* if you need to skip a class, or cannot make a deadline and provide a documented excuse. Please also make sure you have at least one external backup of the assignments you make for this class. Computer problems will not be considered a valid excuse for missing assignments and other deadlines.
- There will be no make-up exams, make-up assignments or extensions of deadlines without a documented medical or academic excuse.
- If you miss *more than 15 minutes of more than three class periods* without a documented medical or academic excuse, one point will be deducted from your final score for each additional time you are absent, leave early, or come late.

Teamwork and academic honesty:

Individual tests and assignments should be submitted individually. Although students are encouraged to discuss course-related issues outside of class, this should not be confused with writing up the results of a classmate's work, letting a classmate copy your work, or having a

classmate check your work – this is unacceptable. See the University of Florida Honor Code and the academic honesty guidelines at https://catalog.ufl.edu/ugrad/1213/advising/info/student-honor-code.aspx.

Accommodations for students with disabilities:
Students requesting classroom accommodation must first register with the Dean of Students Office: http://www.dso.ufl.edu/drc/. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. The Disability Resource Center is located in 001 Building 0020 (Reid Hall). Their phone number is 392-8565. Please let the instructor know as soon as possible whether you need extra time on tests, so arrangements can be made in time for the first test.

Schedule:
The following schedule is an estimate of the course's progress, with readings for the given week and **approximate** dates of the tests. The instructor will let you know when the tests and assignment deadlines are exactly as they approach, and will keep you updated if we go off track. *Please also regularly consult the schedule on the course website for updates*.

Overview of the course, Fall 2015 (subject to change!)

Week/date	**Tuesday**	**Thursday**	**Readings**
1 -*Aug 25/27*	Intro to the course	Brain anatomy	Ward Ch 1+2
NEUROIMAGING TECHNIQUES AND CATEGORIZATION IN THE BRAIN			
2 –*Sept 1/3*	ERP Interpreting ERP data	fMRI	Ward Ch 3; Kaan (2007)
3-*Sept 8/10*	fMRI	Lesions	Ward Ch 4, with the exception of 'analyzing data from functional imaging' p. 66-70
4 -*Sept 15/17*	Lesions Interpreting aphasic symptoms; TMS	Auditory perception: The mismatch negativity.	Ward Ch 5+10 Optional: Phillips et al. (2000)
5 -*Sept 22/24*	*Field trip to ERP lab and fMRI scanner (meet at The Rock/Potato), Turl. Plaza)*	Auditory perception	
6 -*Sept 29-Oct1*	Q&A session test 1 Words	***Test 1***	Ward pages 57-63; 252-256; 259-277; 293-303; 177-188. Patterson, Nestor & Rogers (2007)
RULES VERSUS ASSOCIATIONS			
7- *Oct 6/8*	Words in the brain /dementia	Rules versus associations: regular versus irregular morphology	Ward Ch 1 p. 2-7; Ch 9 195-204 Pinker & Ullman (2002); McClelland & Patterson (2002)
8- *Oct 13/15*	Rules versus associations: reading and dyslexia	Dr. Linda Lombardino on dyslexia	Ward Ch 12; Gabrieli (2009) McCandliss, Cohen, & Dehaene, S. (2003).
9 - *Oct 20/22*	Sentence processing	Sentence level processing About the final assignment	Kaan & Swaab (2002); Ward Ch 11, p. 278-284; Ward Ch 14
10 - *Oct27/29*	Sentence level processing ***Final projects: topic selected***	NO CLASS	

RIGHT /LEFT HEMISPHERE			
11- *Nov3/5*	Q& A test 2 Language production ***Final projects: references and Summary due***	***Test 2***	Ward Ch 11 284-291
12- *Nov 10/12*	Language acquisition	***Draft of paper due Nov 12***	Ward Ch 14; 16 Steinhauer et al. (2009)
13- *Nov 17/19*	Language acquisition/ bilingualism Notes about presenting in an academic setting ***Hand in proof of experimental participation***		
14 – *Nov24*	***Poster presentations*** RH functions	NO CLASS	Jung-Beeman (2005) Campbell (2006)
15- *Dec 1/3*	***Poster presentations*** More on RH functions	Q& A session Test 3 Wrap-up ***Instructor evaluation***	
16- *Dec 8*	***Test 3***	***Final paper due Dec 15***	