

**BRAIN AND LANGUAGE**  
**LIN 4790-122C**  
**SYLLABUS - FALL Semester 2016**

**Classroom & time:** Tuesday 4 period, AND 32 (10:40-11:30am)  
Thursday 4+5 periods, AND 32 (10:40am-12:35pm)

**Instructor:** Dr. Edith Kaan  
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**Grader:** Eunjin Chun  
E-mail: [eunjinchun@ufl.edu](mailto:eunjinchun@ufl.edu)

**Office Hours (TUR 4127):** Kaan: Tuesday 11:45am-1:40pm; Chun: Wednesday 9:35-10:25am; and by appointment.

**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 in-class exercises and other 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 (lecture notes, syllabus, etc.) and exercises will be made available on the Canvas course website on E-learning ([elearning.ufl.edu](http://elearning.ufl.edu)). **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*. 3<sup>rd</sup> 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](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 will need to be handed in, and will be graded. In addition, all homework assignments will be graded, unless indicated otherwise. Answers to homework assignments are to be submitted through the course website *before* the start of the next class, unless indicated otherwise.
- **Tests:** Tests 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. Tests are non-cumulative, but build upon the basic knowledge and way of argumentation dealt with in earlier weeks of the semester.
- **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 about 10 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, 2016 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 by means of an alternative assignment. This involves writing a synopsis of a short research article, video, or a podcast. Details will be made available on the course website. The assignment must be turned in no later than November 17, 2016. 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/SLHS 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 and other cell phone or computer activity is not allowed during class unless this is course-related (note-taking, assignments).
- 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.
- 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>
- 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. UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://catalog.ufl.edu/ugrad/current/advising/info/student-honor-code.aspx>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TA in this class.

**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/](http://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.

**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/>.

**Counseling and Wellness Center & UPD:**

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

**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 regularly consult the schedule on the course website for updates.*

Overview of the course, Fall 2016 (subject to change!)

Week/date	Tuesday	Thursday	Readings
1 -Aug 23/25	Intro to the course	Brain anatomy ERP/fMRI	Ward Ch 1+2
<b>NEUROIMAGING TECHNIQUES AND CATEGORIZATION IN THE BRAIN</b>			
2 -Aug 30/Sept 1	ERP/fMRI fMRI safety video	<i>Field trip to ERP lab and fMRI scanner (meet at The Rock/Potato, Turl. Plaza)</i>	Kaan (2007); Ward Ch 3+4 with the exception of 'Analyzing data from functional imaging' p. 66-70
3-Sept 6/8	ERP/fMRI	Lesions	Ward Ch 5
4 -Sept 13/15	Lesions Interpreting aphasic symptoms; TMS	Auditory perception: The mismatch negativity.	Ward Ch 10
5 -Sept 20/22	Auditory perception	Q&A session test 1	
6 -Sept 27/29	<b>Test 1</b>	Dr. Lori Altmann on language and Alzheimer's Disease	Ward pages 57-63; 252-256; 259-277; 293-303; 177-188. Patterson, Nestor & Rogers (2007)
<b>RULES VERSUS ASSOCIATIONS</b>			
7- Oct 4/6	Words in the brain	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 11/13	Rules versus associations: reading and dyslexia	About the final assignment	Ward Ch 12; Gabrieli (2009) McCandliss, Cohen, & Dehaene, S. (2003).
9 - Oct 18/20	Sentence processing <b>Final projects: topic selected</b>	Sentence level processing	Kaan & Swaab (2002); Ward Ch 11, p. 278-284; Ward Ch 14
10 - Oct 25/27	Sentence level processing <b>Final projects: references and Summary due</b>	Q& A session test 2	
<b>RIGHT /LEFT HEMISPHERE</b>			
11- Nov 1/3	<b>Test 2</b>	Language production	Ward Ch 11, p. 284-291

12- Nov 8/10	Language acquisition Dr. Lisa Scott on brain development	<i>Draft of paper due Nov 10</i>	Ward Ch 16
13- Nov 15/17	Language acquisition/ bilingualism Notes about presenting in an academic setting	<i>Poster presentations</i> <i>Hand in proof of experimental participation</i>	Ward Ch 14
14 – Nov22	<i>Poster presentations</i> RH functions	NO CLASS	Jung-Beeman (2005) Campbell (2006)
15- Nov29/Dec 1	<i>Poster presentations</i> More on RH functions	Q&A session Test 3 Wrap-up <i>Instructor evaluation</i>	
16- Dec 6	<i>Test 3</i>	<i>Final paper due Dec 12</i>	