

BRAIN AND LANGUAGE

LIN 4790-14224

Time: T7th (1:55-2:45 pm); R7+8th (1:55-3:50 pm)

Location: MAT 108

Academic Term: Fall 2022

Instructor

Dr. Edith Kaan

Kaan@ufl.edu; 352 294 7453 (leave a message)

Office hours

In TUR 4127 or over zoom. Tuesday: 3:00-3:50 pm, Thursday 4:05-4:55pm, and by appointment. Contact me for zoom link

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

Course prerequisites

LIN3010 or SPA4004

Course objectives

- To learn about central issues and terminology in brain and language research (lectures, textbook, in-class exercises)
- To learn to evaluate results and claims from neurolinguistics and brain imaging studies (class room discussions, research project)
- To improve written and oral presentation skills (classroom discussions, written project, oral presentation)

Course website

- On Canvas: <http://elearning.ufl.edu>
- Course materials (lecture notes, syllabus, etc.) and exercises will be made available on the course website. 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:** Ward, Jamie (2015). *The student's guide to cognitive neuroscience*. 3rd or 4th edition. Psychology Press. ISBN 9781138490543 or 9781848722729.

- 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).
 - Giuliano, R., Pfordresher, P., Stanley, E., Narayana, S., & Wicha, N. Y. (2011). Native experience with a tone language enhances pitch discrimination and the timing of neural responses to pitch change. *Frontiers in Psychology*, 2. <https://doi.org/10.3389/fpsyg.2011.00146>
 - 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.

Assessments

Assignment	Total Points	Percentage of Final Grade
Homework assignments	100 each	25%
Tests (2)	100 each	40% (20%each)
Research project + presentation	100	30%
Class participation/In class assignments	100 each	5%
Extra credit (research participation)	2	2%

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 in **on the website** by 1:55 pm on the day they are due, unless indicated otherwise.
- **Tests:** There will be two in-class, closed-book exams that will cover material from the lectures and assigned readings. Exams will consist of a mix of different question types.
- **In-class Activities:** Some in-class activities will require written responses. In some cases, students will be asked to submit a copy of their responses. Activity participation will typically be scored as 100%, but will be graded as 75% when a student is lacking in some effort, or 0% if the assignment has not been handed in.
- **Research Project Assignment:** Over the course of the semester you will work on a project. The topic of this project and the readings pertaining to the project will be assigned to you by the instructor. At various points throughout the semester assignments related to this paper need to be handed in.
 - Part 1: Thinking about experimental techniques:** you will be asked to evaluate the use of certain experimental methods to answer particular research questions, based on an original research article assigned to you.
 - Part 2: Summary:** you will be asked to summarize an original research article assigned to you.
 - Part 3: Group analysis:** You will be asked to read 2-3 other research papers on the same research topic that were summarized by your group members. As a group, you will be asked to identify the differences and similarities among the research findings. This will result in a written group report.
 - Part 4: Project presentation:** The findings in part 3 will be presented to the class as a poster or power point presentation (TBA). This presentation should clearly summarize the main points and arguments of the papers you have read and should conclude with your group's opinion, and suggestions for further experimentation.
 - Part 5: Final research project/paper assignment:** This paper should be written in your own words and handed in individually. 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.
- **Optional extra credit assignment:** Students who wish to may increase their total grade points by 2 (out of 100) by participating in 2 hours of participation in psycholinguistic experiments through the LIN-SLHS participant pool. **Deadline is November 10.** A list of experiments can be found at: <https://slhs.php.ufl.edu/category/participant-pool/>. This site will be updated throughout the semester. Please retain the IRB form with the original signature from the experimenter (no photocopies) as proof that you participated. Experiments that you have previously participated in, experiments that you count towards other classes, or experiments you were paid to participate in *cannot* count toward this. 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.

Cellphone Policy, Attendance Policy, Class Expectations, and Make-Up Policy

- Cell-phone use is not allowed during class unless this is part of the course assignments. If you are using a laptop in class, only use it to take notes and for in-class assignments.
- Students are required to hand in all assignments and tests before the class period they are due. Please contact the instructor in advance if you need to skip a class, or cannot make a deadline.
- Attendance is mandatory. If you are absent or more than 15 minutes late for more than two classes, you will get a warning. If absences persist the instructor can prohibit further attendance and assign a failing grade for excessive absences.
- 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: catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/
- Students are encouraged to employ critical thinking and to rely on data and verifiable sources to interrogate all assigned readings and subject matter in this course as a way of determining whether they agree with their classmates and/or their instructor. No lesson is intended to espouse, promote, advance, inculcate, or compel a particular feeling, perception, viewpoint or belief.

Grading

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>

Students Requiring Accommodation

Students with disabilities requesting accommodations should first register with the Disability Resource Center (<https://disability.ufl.edu/students/get-started/>) 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 Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on

how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

University Honesty Policy

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://sccr.dso.ufl.edu/process/student-conduct-code/>) 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 in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab

sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Covid-19 policies

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.ufl.edu 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.

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

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

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus:
https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.

Schedule (subject to change!!!)_

The following schedule is an estimate of the course's progress, with readings for the given week and **approximate** dates of the tests and assignments. 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.*****

Week	Dates	Topic	Readings/Assignment(s)
1	Aug 25	Introduction Brain anatomy	Ward Ch 1+2 "getting to know you"
2	Aug 30 Sept 1	lesions	Ward Ch 5
3	Sept 6 Sept 8	ERP Fieldtrip to ERP lab	Ward Ch 3 Kaan (2007)
4	Sept 13 Sept 15	fMRI Fieldtrip to scanner	Ward Ch 4
5	Sept 20 Sept 22	Auditory perception	Ward Ch 10 HW 1 due Project part 1 (techniques) Giuliani et al. (2011)
6	Sept 27 Sept 29	Words in the brain	Ward Ch 11 Patterson et al. (2007)
7	Oct 4 Oct 6	Morphology Q&A	Project part 2 due (summary) Pinker & Ullman (2002); McClelland & Patterson (2002) HW 2 due
8	Oct 11 Oct 13	Test 1	Test 1
9	Oct 18 Oct 20	Reading and dyslexia	Ward Ch 12; Gabrieli (2009)
10	Oct 25	Sentence processing	Ward Ch 9,11, 14

	Oct 27		
11	Nov 1 Nov 3	Sentence processing	HW 3 due Project part 3 due (group report)
12	Nov 8 Nov 10	Language acquisition	Ward Ch 16 Extra credit deadline
13	Nov 15 Nov 17	Language acquisition/bilingualism Right Hemisphere	Project presentations Campbell (2006); Jung-Beeman (2005)
14	Nov 22 Nov 24	Q&A NO CLASS	HW 4 due
15	Nov 29 Dec 1	Test 2	Test 2 Project presentations
16	Dec 6	Wrap-up	Project presentations Final paper due Dec 13