University of Puerto Rico, Río Piedras
Faculty of Humanities, Graduate Program in Linguistics
LING 6595 Brain and Language: Critical Analysis of Current Literature
First Semester 2018-2019: August to December 2018
Wednesdays, 5:00 to 7:50 pm, LPM 212

Professor:
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Office Hours: Tuesday and Thursday 1:00 pm – 2:30 pm, and by appointment

Course Description:
Study of the neural basis of human language with the aim of developing an ability to critically evaluate neuroscience research in the student's area of interest. This is a three credit-hour course.

Prerequisites:
Graduate standing or permission of the instructor.
This course is taught in English and students should be proficient in English.

Course Objectives:
1. differentiate the basic language network and explain the evidence supporting it
2. explain the difference between imaging technologies
3. define how neural phenomena such as connectivity, plasticity, neural oscillations, and default modes bear on language research
4. discuss the relevance of other cognitive processes such as memory, attention, decision making, or response inhibition with respect to language processing
5. understand the relevance of pretests, neuropsychological testing and similar tools employed in neurolinguistic studies
6. identify research question, hypothesis, methods, results, and conclusions of studies
7. evaluate the fit i) between a study question or hypothesis and its subject pool, task design, and imaging method and ii) between results and conclusions of a study

Textbook and Teaching Method:
There is no textbook for this course. Each week students are assigned papers to read and often videos to watch and take notes on. All materials for this course --- the syllabus, assignments, pdfs of the readings, and video links --- ARE POSTED WEEKLY ON THE LING 6595 FOLDER ON MY GOOGLE DRIVE. You have each received a link to access the drive.

Classes involve some lectures, but primarily creative projects, presentations and discussions of articles from popular media, science journalism, and the peer-reviewed neuroscience literature.

In the first weeks of class, several fundamental topics are presented and students are assigned three mini-assignments.

Between weeks 6 and 14, students will be assigned to present a brief summary of readings to initiate class discussion. In addition, a series of three, short written assignments will guide students through the development of their final presentation. This course does NOT require a written research paper.

Up to 25% of class sessions may involve non-classroom activities.

In Brief: Weekly Course Topics

Tentative and subject to change

Date	Unit	Topics	Presentations & Written Assignments
Aug 22	Unit One: Intro to the Brain & Language	1. A History of Investigations of the Human Brain	
Aug 29		2. Basic Brain Anatomy; Lateralization & Split Brains	Brain Anatomy Mnemonic
Sep 05		3. Anatomy and Function; Understanding Connectivity; The Brain in Pop Literature	Presentation of Pop Lit Article on Brain & Language
Sep 12		4. Changing Views of the Language Network; The Brain in Science Literature	Presentation of General Science Article on Brain & Language
Sep 19		5. Brain Imaging Methods; Language and Music: How to Read and Present Scientific Journal Pieces	
Oct 03	Unit Two: Examining Language Structures through Blood Flow, Spikes and Waves	6. fMRI Studies of Language; Using Brain Atlases	
Oct 10		7. ERPs in Language Studies; The History of the N400	Submit Final Presentation Topics
Oct 17	Unit Three: Language Related Functions	8. Critiquing Research Design; Memory and Attention;	Student Presentations Introducing the Discussion of An Assigned Readings — 1 paper per student Final Presentation Project Proposals Due Oct 31
Oct 24		9. Understanding Plasticity Brain Waves in Sleep, Consolidation and Learning	
Oct 31		10. Emotion Processing; Researching Empathy; Rethinking Mirror Neurons	
Nov 07	Unit Four: Applied Language Topics	11. Language Acquisition and Cognitive Development; Library Databases	Student Comparative introductions of Two Assigned Readings — 2 papers per student Final Presentation Status Updates Due Nov 28
Nov 14		12. Language Disorders in Speech and Reading	
Nov 21		13. Aging & Language Decline	
Nov 28		14. Bilingualism	
Dec 05	Unit Five; Ethics and Applications	15. Ethics in Neurolinguistics; Workshop on Status Updates	
Dec 12		16. Final Student Presentation	

Assignments per unit:		**points:**
Unit 1	Brain anatomy mnemonic: a creative aid to memorization	5
	Oral Summary: article from popular media	5
	Oral Summary: article from general science media	5
Unit 2	Oral presentation introducing discussion of one assigned reading	10
	Final Paper Topic Selection	5
Unit 3	Oral presentation introducing discussion of two assigned readings	20
	Research Project Proposal with an outline of a review study on topic	10
Unit 4		
	Research Project Status Report with outlines of TWO published studies	10
Unit 5		
	Oral Presentation of Research Project	15
	On-time attendance and participation in class	15
		100

Grade Scale: 100-90: A; 89-80: B; 79-70: C; 69-60: D; below 60: F

Evaluación diferenciada a estudiantes con necesidades especiales identificadas.
Speak to me after the first class.

Policies:

- Attend on time: You are expected to come to class and to arrive on time.
- Assignments: No late assignments will be accepted. Presentations take place during a scheduled class and all other assignments are ordered and develop skills to create the final project: they must be completed as scheduled. There are no makeups.
- Weekly preparation: This class requires significant reading and video viewing which must be completed PRIOR to class. You should assume approximately 10 hours of work per week in preparation for this course.
- Up to 25% of class sessions may involve non-classroom activities.
- Use of English: You are expected to write and present in English. All written work and presentations are graded primarily on content, not how well you have mastered SAE. The papers to be read are written in English and class discussion will be held in English.
- Electronics: Set your cellphones and similar electronic devices on vibrate and keep them off your desk. Phones may be checked for emergencies. Computers and readers for note-taking and reference to published documents are permitted and encouraged.
- Practicum Option. This course may be taken with a practicum in lieu of the final project by students who have successfully completed other neuroscience courses. This option requires permission of the instructor, and requests must be made before the second week of class.
- Plagiarism: Plagiarism of any kind — including the copying of the work of fellow students — will result in a 0 for the assignment, paper, or exam and possible further action.
    - Circular 17: Deshonestidad académica: La falta de integridad y el fraude académico y científico incluye: plagio, falsificación, invención o atribución falsa y cualquier engaño o desviación de aquellas conductas prácticas de honestidad generalmente aceptadas en la comunidad académica, que no ocurra como resultado de errores o diferencias honestas e involuntarias en la interpretación o manejo de datos o información.
    - Reglamento General de Estudiantes UPR, Articulo 6.2: Conducta estudiantil sujeta a sanciones disciplinarias 1: Deshonestidad académica: Toda forma de deshonestidad o falta de integridad académica, incluyendo, pero sin limitarse a, acciones fraudulentas, la obtención de notas o grados académicos valiéndose de falsas o fraudulentas simulaciones, copiar total o

parcialmente la labor académica de otra persona, plagiar total o parcialmente el trabajo de otra persona, copiar total o parcialmente las respuestas de otra persona a las preguntas de un examen, haciendo o consiguiendo que otro tome en su nombre cualquier prueba o examen oral o escrito, asi como la ayuda o facilitación para que otra persona incurra en la referida conducta.

- Law 51: Those students who receive services provided by the Office of Vocational Rehabilitation should contact the professor at the beginning of the semester to plan reasonable accommodation and the necessary equipment according to the recommendations offered by the Dean of Students, Office for Persons with Disabilities (OAPI). Any other students with special needs who require special assistance should contact their teacher.

On-line Resources

Keith Johnson & J. Alex Becker, Harvard Medical School **The Whole Brain Atlas**: Images, scans, movies etc. of normal & disordered brains http://www.med.harvard.edu/AANLIB/home.html

John W. Sundsten and Structural Informatics Group, Department of Biological Structure, University of Washington, Seattle. **Digital Anatomist Project**. 2-D and 3-D views of the brain from cadaver sections, MRI scans, and computer reconstructions. http://www9.biostr.washington.edu/da.html

National Laboratory of Pattern Recognition, Institute of Automation, The Chinese Academy of Sciences, 100190, PR China. The idea of this project is to present a finer subdivision of areas based on functional and structural connections. I am unsure of the current status of this project.
http://atlas.brainnetome.org/

How the human brain works, a 2010 introduction from the University of Bristol in the UK.
https://www.youtube.com/watch?v=9UukcdU258A

Talking Brains
http://www.talkingbrains.org/

National Institute of Deafness and Other Communication Disorders
http://www.nidcd.nih.gov/

National Institute of Neurological Disorders and Stroke
http://www.ninds.nih.gov/

American Speech and Hearing Association
http://www.asha.org/

Linguistic Society of America
http://www.lsadc.org/

Language log
http://languagelog.ldc.upenn.edu/nll/

McGill University Brain Imaging Resources including:
Tool Module: Brain Imaging --- overview of imaging techniques
http://thebrain.mcgill.ca/flash/capsules/outil_bleu13.html

General References

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