

Language & Brain
(Psychology W2440)
Tue-Th 4:10-5:25 pm
501 Schermerhorn Hall

Lecturer Prof. Michele Miozzo (mm1150@columbia.edu)

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Office Hours MM: Tuesday & Thursday 5:30-6:30 pm, or by appointment (356 Sch Ext)
CMC: Tuesday & Thursday 2 – 3 pm (219 Schermerhorn Hall)
BV: Tuesday & Friday 12:15 – 1:15 pm

Course Objectives: The course will address two issues: **(a)** the psychological processes that underlie universal linguistic abilities (speech comprehension/production, communication) and abilities acquired only by certain individuals (reading, writing, use of multiple languages); and **(b)** the organization of these processes in the brain. The course will review the approaches adopted in language science to investigate cognitive and neurocognitive aspects of language, and will survey the fundamental experimental findings motivating current theories of language processing.

Classes: Provide an introduction to each topic and focus on seminal experiments and key theories. Classes may cover different materials from readings. Lecture slides will be posted to Courseworks prior to each class. Class attendance is recorded for statistical purposes.

Assignments: Take home assignments will be given on a weekly basis, and will be based on course material presented during lectures. Assignments will test your understanding of the material – e.g., by challenging you to provide short commentary on various topics or having you think through various experimental designs. Assignments will be posted to Courseworks on Thursday and will be due the following Tuesday, by noon.

Readings: Consist of introductory chapters published in various books and of reviews that appeared in scientific journals or handbooks. TA's will provide guidelines and highlights for the weekly readings in the format of bullet points to aid in your understanding of the material. Readings can be downloaded from Courseworks.

Final Grades: Depend on: **(1)** a midterm exam (40%); **(2)** a final exam (50%); **(3)** weekly class assignments (10%). Exams will be a combination of multiple choice questions and short answers. Sample exam questions will be provided prior to the exams to use as a study guide. The final is cumulative and it will include questions addressing general topics covered in the first half of the course. No extra-credit opportunities will be offered.

Academic Integrity

As indicated in the *Faculty Statement on Academic Integrity*, we should keep in mind that

“The intellectual venture in which we are all engaged requires of faculty and students alike the highest level of personal and academic integrity. As members of an academic community, each one of us bears the responsibility

to participate in scholarly discourse and research in a manner characterized by intellectual honesty and scholarly integrity... In practical terms, this means that, as students, you must be responsible for the full citations of others' ideas in all of your research papers and projects; you must be scrupulously honest when taking your examinations; you must always submit your own work and not that of another student, scholar, or internet agent."

www.college.columbia.edu/academics/integrity-statement

Cheating on assignments or exams and plagiarism are very serious violations within the academic community. Students are expected to do their own work on all tests and assignments for this class. You are expected to always act in accordance with the Columbia honor code. Any student found cheating or plagiarizing in this class will be reported to the university for academic discipline. If you have questions about academic integrity at Columbia, please refer to the following link:

<https://www.college.columbia.edu/academics/integrity>

Class Calendar

Week 1 (Sept. 3-5)

What is language?

Reading and Writing

- Dehaene S. Reading in the Brain. Ch 1 (p. 11-51).

Week 2 (Sept. 10-12)

Reading and Writing

- Dehaene S. Reading in the Brain. 2 (53-120), Ch 6 (p. 235-261).

Week 3 (Sept. 17-19)

Reading and Writing

- Rapp B. Uncovering the cognitive architecture of spelling. In AE Hillis, The Handbook of Adult Language Disorders (p. 47-62)

Language Production: From concepts to lips

1. The processing of words

- Levelt WHM. Models of word production. TICS, 1999, 3 (p. 223-232).

Week 4 (Sept. 24-26)

Language Production: From concepts to lips

2. The production of sounds

- Pinker S. Words and rules (Ch. 2, 4, 5).
- Linguistics: An introduction. Phonemes, syllables and phonological processing (p. 84-101).
- Levelt WHM. Speaking (p. 422-434).

Week 5 (Oct. 1-3)

Language Production: From concepts to lips

3. The talking brain

- Race DS & Hillis AE. Neural bases of word representations for naming. In M Miozzo, M Goldrick & V Ferreira (in press), The Oxford Handbook of Language Production.

Language Comprehension: From the ears to the concepts

- McQueen JM. Eight questions about spoken word recognition. In MG Gaskell, The Oxford Handbook of Psycholinguistics (p. 37-53).

- Week 6 (Oct. 8-10)**
Language Comprehension: From the ears to the concepts
- Hickok G & Poeppel D. The cortical organization of speech processing. *Nature Review Neuroscience*, 2007, 8 (p. 393-402).
 - Linguistics: An introduction. Categorical perception (p. 120-125).
 - Massaro DW & Jesse A. Audiovisual speech perception and word recognition. In MG Gaskell, *The Oxford Handbook of Psycholinguistics* (p. 37-53).
 [Optional]
- Week 7 Review Section (Oct. 15)**
Mid-term exam (Oct. 17)
- Week 8 (Oct. 22-24)**
Sentence Processing
- Linguistics: An introduction. Sentence structure (p. 292-303).
 - Gibson E & Pearlmutter NJ. Constraints on sentence comprehension. *TICS*, 1998, 3 (p. 262-268).
 - van Gompel RPG & Pickering MJ. Syntactic parsing. In MG Gaskell, *The Oxford Handbook of Psycholinguistics* (p. 289-307).
- Week 9 (Oct. 29-31)**
Sentence Processing
- Kaan E & Swaab TY. The brain circuitry of syntactic comprehension. *TICS*, 2002, 6 (p. 350-356).
 - Pickering MJ & Branigan HP. Syntactic priming in language production. *TICS*, 1999, 3 (p. 136-141).
- Week 10 (Nov. 7) – Voting Holiday; No Class November 5th**
The bilingual brain
- Grosjean F. Bilingual: Life and Reality. Ch. 2 (p. 18-27).
 - Bialystok et al. Bilingual minds. *Psychological Sciences in the Public Interest*, 2009, 10 (p. 89-129).
- Week 11 (Nov. 12-14)**
The bilingual brain
- Werker JF & Byers-Heinlein K. Bilingualism in infancy. *TICS*, 2008, 12 (p. 144-151).
 - Sebastián-Gallés, N., & Bosch, L. Phonology and bilingualism. In Kroll JF & DeGroot AMB, *Handbook of Bilingualism* (p. 68-88).
- Week 12 (Nov. 19-21)**
Speech & context
- Clark HH. Spontaneous discourse. In M Miozzo, M Goldrick & V Ferreira (in press), *The Oxford Handbook of Language Production*.
 - Garrod S & Pickering MJ. Why is conversation so easy? *TICS*, 2004, 8 (p. 8-11).
 - Ferreira F & Bailey KGD. Disfluencies and human language comprehension. *TICS*, 2004, 8 (p. 231-237).

Week 13 (Nov. 26) – **Thanksgiving Holiday; No Class November 28th**

Speech & context

- Linguistics: An introduction. Sound change (p. 66-78).
- Goldin-Meadow S. The role of gesture in communication and thinking. TICS, 1999, 3 (p. 419-429).

Week 14 (Dec. 3-5)

Language & thinking

- Pinker S. The Stuff of Thoughts. Ch. 3 (p. 89-151).

Resources

- Neuroanatomy and neurologically related information:
<http://www.columbia.edu/itc/hs/medical/neuroanatomy/neuroanat/>
<http://www.med.harvard.edu/aanlib/home.html>
- Linguistic terms: <http://www.sil.org/linguistics/GlossaryOfLinguisticTerms/>
- On psycholinguistics: <http://www.psychologydegree.net/resources/the-psychology-of-linguistics-and-body-language/>