The course surveys neurolinguistics, relating observations about the brain to cognitive and linguistic theories. The first step is to be puzzled by the fact that something inside our skull somehow gives us the ability to communicate so freely with our fellow humans. Is there a scientific explanation for this amazing ability? The matter remains quite open, but a lot has been learned especially since the rise of neuroimaging in the 1990s. Students emerge from the course able to recognize classic theoretical conceptions of “language” and “mind” and draw out their implications for brain data from imaging and other methodologies.

**Tentative Schedule**

This schedule will be adjusted to fit the specific interests of the course attendees.

**Jan 28** the problem of reconciling conceptual and physical.

Cognitivist response: the mind is a computer.

**READINGS**

Excerpt from [Marr (1982)](1) chapter 1, Excerpt from [Smolensky and Legendre (2006)](1)

**Feb 2, 4** what’s in there: neurons and lobes


**Feb 9, 11** a tour of methods

**READINGS** K chapter 2. Visit to [CMRIF](1)

**Feb 18, 23, 25** aphasia and classic models of it

**READINGS** K chapter 3

**Mar 1, 3** speech perception is hierarchical: the Dual-Stream model

**READINGS** K chapter 4. [Mesgarani et al. (2014)](1), [Ding et al. (2016)](1)

**Mar 8, 10** inflectional morphology

**READINGS** K chapter 13

**Mar 15, 17** Neural nets and their application to morphology

**READINGS** Excerpts from PDP books and a little bit on classifiers.

Additional detail on deep learning in [Goldberg (2015)](1), [Goodfellow et al. (2016)](1) and [Gibson and Patterson (2016)](1)
Mar 22, 24  generative grammar as a theory of what language really is
READINGS Devlin (2000 chapter 6) + his appendix

Spring break

Apr 5, 7  parsing, a step of comprehension
READINGS Hale (2014 chapter 3), Dyer et al. (2016)

Apr 12, 14  brain network for comprehension
READINGS K chapter 15

Apr 19, 12  composition
READINGS Bemis and Pylkkänen (2011, 2013) and Zaccarella and Friederici (2015)

Apr 26, 28  decoding composed representations
READINGS Frankland and Greene (2015), Barbu et al. (2013)

May 3, 5, 10  incremental processing and prediction
READINGS K chapter 15 pp459-469 on ERPs
Bornkessel-Schlesewsky and Schlesewsky (2009 chapters 8 and 9)

Possible Bonus Topics
1. decompositional theories of word meaning – Harley (2014 chapter 11), then Part V of K
2. reading – K chapter 8, Dehaene (2009) and Wolf (2007)
3. sign language – K chapter 9

Basis of Grading
30 % quizzes  brain anatomy, grammar, parsing, neural nets
40 % essays  two-page essays arguing one side or another of a scientific controversy (student’s choice)
30 % final exam  mix of essay and quiz-type questions

Academic Integrity
Participants shall abide by the Cornell Code of Academic Integrity as described at

http://cuinfo.cornell.edu/aic.cfm
References


