Spoken, written, and signed languages are the primary means by which humans convey information. Breakdown in these systems, whether as a result of a developmental disability or later insult through disease or injury, has substantial implications for daily living and social functioning. Recent advances in neuroimaging techniques (e.g. MRI, ERP, TMS, fNIRS), combined with classic lesion approaches, have provided a window into the underlying neurobiological bases of typical and atypical processing, and have advanced theories of typical and atypical function and development. This course will take a cognitive neuroscience approach to the study of language, the theoretical architectures that support its development and processing, and which aspects of the system are impaired in its failure. We will examine the neural foundation supporting language through the lifespan as well as across multiple levels of processing (e.g. phonetics, lexical processing, syntax, and comprehension), and will consider how the study of typical and atypical language may be mutually informative.

*Fulfills IGERT course requirement but is open to all.

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<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<td>1</td>
<td>1/28</td>
<td><strong>Course Overview, Neuroanatomy &amp; Methods</strong></td>
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| 2    | 2/4  | **Architectures: Compare and Contrast**  
A.R. Luria, *“Factors and Forms of Aphasia”* (1964)  
Sandak et al. (2012)  
Hagoort (2017)  
*Preview of Speech Perception* |
| 3    | 2/11 | BIRC tour 9:30 - 11 w /Roeland Hancock |
| 4    | 2/18 | **Speech Perception & Production**  
Blumstein & Myers (2013) REVIEW  
Obleser & Eisner (2009) REVIEW  
D’Ausilio (2012)  
Rogalsky et al., (2011)  
*Preview of lexical retrieval & lexical semantics* |
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<th>Week</th>
<th>Date</th>
<th>Notes</th>
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| 5    | 2/25  | Adrian Garcia-Sierra: Bilingual language development  
Lexical Semantics & Lexical Retrieval  
Binder et al., (2003) [REVIEW]  
Patterson, (2007)  
[preview of word reading and reading comp] |
| 6    | 3/4   | Word Reading & Reading Comprehension  
Landi et al. (2013) [REVIEW]  
Pugh et al. (2000) [REVIEW]  
Ben Shachar et al. (2011)  
Mauer et al. (2005)  
Meyler et al. (2007)  
[preview of dyslexia] |
| 7    | 3/11  | DICK ASLIN: Infant language development |
| 8    | 3/18  | (NO CLASS: SPRING BREAK) |
| 9    | 3/25  | Dyslexia  
Jasinska & Landi (in press) [Review]  
Shaywitz et al. (2002)  
Deutch et al. (2005)  
Pugh et al. (2014) |
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| 11 | 4/1 | ERIKA SKOE

[Preview of syntax]

Zaccarella & Friederici, 2017 (REVIEW)
Kuperberg, 2006 (REVIEW)
Van Berkum et al., 2008

| 12 | 4/8 | JON SPROUSE

[preview of SLI & comprehension impairment]

| 13 | 4/15 | SLI/DLD & Comprehension Impairment

Mayes et al. (2015) [Review SLI]

Cutting et al. (2013)
Ellis-Weismer et al. (2005)
Kornilov et al. (2014).

| 14 | 4/22 | Debates

| 15 | 4/29 | Debates

**Student Requirements**

65% of your grade will be based on participation.

1. In order to facilitate meaningful participation in the class, and to reinforce the good habit of coming to class prepared, every student will prepare one discussion question for each of the assigned readings. Please post your questions on the Husky CT Discussion Board under the thread devoted to that article. Questions should be posted by **5 PM on Sunday night** in order to give the presenters ample time to read the questions and address them in the presentation.

2. Articles in bold on the syllabus will be presented by a student presenter. If you have signed up to present the article for the day, you are responsible for leading the discussion. You
may include powerpoint, write on the board, or speak from notes. **Please try to keep your presentation to about 20 minutes to allow for questions.** Your classmates will have read the article, so your job is to summarize and facilitate discussion, not to present every detail of the paper. Specifically, you need to make sure to cover the following:

a. The motivation for the study and the hypotheses
b. Methods and approach
c. Results and interpretation
d. The author’s conclusions
e. MOST IMPORTANTLY: Do you agree with this interpretation, and why or why not

3. You will be randomly assigned a region (or a few regions) that play a role in the language network in the brain. Your task will be to develop expertise on the role of that region(s) in language processing as we accumulate evidence through reading primary sources. To facilitate sharing this information, we will create a shared Google Doc as a class with your notes and observations on the role of “your” region, its relationship to other areas. By the end of the semester, you’ll summarize your overall take on how your area contributes to language processing.

The remaining 35% of your grade will be based on a final presentation and paper that takes a viewpoint on a debate in the cognitive neuroscience of language. Details will follow.

**Reading List:**

**Week 2: Architectures**


**Week 4: Speech Perception / Production**


**Week 5: Lexical Semantics/Lexical Access**


**Week 6: Reading**


Meyler et al. 2007 Brain activation during sentence comprehension among good and poor readers. *Cerebral Cortex, 17*, 2780 - 2787

**Week 9: Dyslexia**


**Week 11: Syntax**


**Week 13: SLI/DLD & Comprehension impairment**


**AREAS**

1 LSTG
2 RSTG & Cerebellum

3 Caudate, Striatum, other Basal Ganglia

4 LIFG-triangularis & orbitalis

5 LIFG-opercularis & precentral gyrus

6 LSupramarginal Gyrus, L Angular gyrus

7 L Middle Temporal Gyrus

8 Transverse temporal gyrus/Heschl’s Gyrus (left and right)

9 Temporal Pole & Inferior Temporal Gyrus

10 Left fusiform (VWFA)

11 Insula & Cingulate