Neural Bases of Language

V89.0300-001/V61.0043-001

Instructor

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Course description

What are the brain bases of our ability to speak and understand language? Are some parts of the brain dedicated to language? What is it like to lose language? This course provides a state-of-the-art survey of the cognitive neuroscience of language, a rapidly developing multidisciplinary field in the intersection of Linguistics, Psycholinguistics and Neuroscience. Lectures cover all aspects of language processing in the healthy brain from early sensory perception to higher level semantic interpretation as well as a range of neurological and development language disorders, including aphasias, dyslexia and genetic language impairment.

Topics & Readings

GOALS AND QUESTIONS


BRAIN BASICS

- The Human Brain website
- Brain Info Website
- Brain Structure
HISTORY: BROCA AND WERNICKE


FUNCTIONAL NEUROIMAGING AND ELECTROPHYSIOLOGY


SPEECH PERCEPTION, PURE WORD DEAFNESS

- Polster MR, Rose SB. Disorders of auditory processing: evidence for modularity.

SOUNDS AND CATEGORIES


READING

- Tarkiainen et al., Dynamics of visual feature analysis and object-level processing in face versus letter-string perception, Brain. 2002 May;125(Pt 5):1125-36.

DYSLEXIA

- Scientific American: 11/01/1996 Dyslexia

CONNECTING SOUND TO MEANING, ANOMIA & TRANSCORTICAL SENSORY APHASIA


ELECTROMAGNETISM OF LEXICAL ACCESS

MORPHOLOGY


THE PAST TENSE DEBATE


FUNCTION VS. CONTENT WORDS


SPECIFIC LANGUAGE IMPAIRMENT

- M. Gopnik. Language deficits and genetic factors. Trends in Cognitive Sciences, Volume 1, Issue 1, April 1997, Pages 5-9

SYNTAX, NEUROIMAGING


SYNTAX, ELECTROPHYSIOLOGY

- Angela D. Friederici, Towards a neural basis of auditory sentence processing, Trends in Cognitive Sciences, Volume 6, Issue 2, 1 February 2002, Pages 78-84

SYNTAX, APHASIA

- Zurif, E. Brain Regions of Relevance to Syntactic Processing

SEMANTIC PROCESSING: THE N400

LANGUAGE AND GENES (GARY MARCUS GUEST LECTURE)


WILLIAMS SYNDROME

• Scientific American: 12/01/1997 Williams Syndrome and the Brain

LANGUAGE AND MUSIC


SIGN LANGUAGE

• Scientific American: 06/01/2001 Sign Language in the Brain