LANGUAGE DISORDERS & NEUROLINGUISTICS (PSYCH 830:402:02)
Spring 2012 Syllabus
(Last Updated: 1/12/2013)

WARNING: Class participation counts for approximately a third of your grade.
IF YOU CANNOT ATTEND CLASS REGULARLY, DO NOT TAKE THIS COURSE!

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Office hours: Time TBA. Location: Busch Psych Building, Room 233
Skype office hours: by arrangement
Course Time: Thursdays Periods 1 & 2
Course Location: SEC 206
Sakai site: Neuroling: Spring 2012

Learning goals: This course explores the neural bases of the production, comprehension and acquisition of human language. What do people with acquired and developmental disorders reveal about the cognitive neuroscience of language? What do neuroimaging studies of "normal" adults and children reveal about the cognitive neuroscience of language?

SCHEDULE (Tentative)

Week 1: Intro to course/beginning concepts

Weeks 2: Intro to neuroimaging & disorders

Weeks 3-4: Speech

Week 5: Morphology

Weeks 6-7: Words

Weeks 8-9: Syntax

Week 10-11: Discourse/pragmatics

Week 12-14: Wrap up & Class presentations

SPECIALTY TOPICS

Over the course of the semester, you will become an expert in some aspect of neurolinguistics. Throughout the semester, you will share your developing expertise with your classmates through each week's in-class and on-line discussions and presentations. You will also write a final paper on this topic.

During the first meeting of the class, you will choose a special topic. I have listed some suggested topics at the end of this document. Please come to the first class with a list of your top THREE choices. If you do not choose a topic, I will choose one for you. If two or more students want to do the same topic, I will

choose one student at random. If you want to do something that is not on the list, please email RU.neuroling@gmail.com before the first class saying what the topic is and why you are interested in it.

Adult disorders

- Broca's aphasia
- Wernicke's aphasia
- "Other" aphasia (transcortical motor aphasia, transcortical sensory aphasia, subcortical aphasia)
- Right hemisphere brain damage
- Schizophrenia
- Alzheimer's disease/dementia
- Parkinson's disease
- Huntingtons disease
- Acquired dysarthria
- Apraxia
- Acquired language disorders in multilingual people
- Mesial temporal lobe epilepsy

Pediatric disorders

- Specific language impairment - expressive
- Specific language impairment - receptive
- Auditory processing disorder
- Acquired traumatic brain injuries (focal brain injuries, hemispherectomy)
- Acquired eliptiform aphasia (Landau-Kleffner Syndrome)
- Autism & Aspergers Syndrome
- Williams syndrome
- Down syndrome
- Developmental dyspraxia and dysarthria
- Speech sound disorders
- Stuttering, Cluttering and dysfluency
- Semantic/pragmatic disorder
- Prematurely born children
- In utero exposure to (licit and illicit) drugs and alcohol
- FoxP2
- Other genetic disorders (e.g., Prader-Willi, Rett syndrome, Cru-du-chat, Fragile X etc.)
- Sex chromosome disorders (e.g., Kleinfelter's syndrome, Turner's syndrome) and other disorders affecting sex steriods (e.g., congenital adrenal hyperplasia)
- Dyslexia
- Non-verbal learning disorders (e.g., ADHD, dyscalculia, sensory integration disorders)

Neurolinguistics of neurologically intact “special” populations

- Multilingual people
- Deaf native signers
- Hearing impaired people not exposed to sign language from birth (including cochlear implants, linguistic isolates)

Neuromaging studies of typical populations

- fMRI & PET studies of normal adults
- ERP & MEG studies of normal adults
- fMRI studies of normal children
- ERP & MEG studies of normal children
- Optical imaging (NIRS)

READINGS

Required Textbook

Ingram, J.C.L. 2007. *Neurolinguistics: An Introduction to Spoken Language Processing and its Disorders.* Cambridge University Press.

[Selected chapters from: Stemmer, B., & Whitaker, H., eds. (2008) *Handbook of the Neuroscience of Language*. Academic Press].

Highly recommended additional books that are entertaining (and cheap!):

Goldberg, S. 2010. *Clinical Neuroanatomy Made Ridiculously Simple* (Any edition is fine, but the more recent ones come with nice supplementary AV materials)

Pinker, S. 1994. *The Language Instinct.* (Any edition is fine)

Course-wide readings (tentative)

Most weeks, there will be 1 or 2 assigned readings that will be read by all of the students in the class. Here is a tentative list

Week 1: Intro to language: Ingram, chapters 1 & 2

Week 2: Intro to neurolinguistics: Ingram, chapters 3 & 4; Stemmer & Whitaker (S&W), chapter 6

Week 3-4: Speech: Ingram, chapters 5, 6, 8; Stemmer & Whitaker (S&W), chapter12

Week 5: Morphology: Ingram, chapter 9; S&W, chapter 13

Week 6-7: Words: Ingram, chapters 7, 10 and 11; S&W, chapter 14

Week 8-19: Syntax: Ingram, chapters 12, 13, and 14; S&W, chapter 15

Week 10-11: Discourse/pragmatics: Ingram, chapter 15 & 16; S&W, chapter 16-17

Special readings

In addition to the general readings, each week, you must find and read an additional paper about his or her special topic as it relates to the aspect of language being discussed that week. (See the "FINDING SPECIAL READINGS" at the end of this syllabus.) For example, if your topic is Aspergers syndrome, for the speech production week, you might read a neuroimaging paper of speech production in Asperger's, a paper that discusses what aspect(s) of speech are most affected (usually prosody) and what aspects are least affected (usually phoneme articulation). If you cannot find anything about your disorder and the topic, find and read a neuroimaging paper that covers the neural bases of that aspect of language in normal people.

Special readings must be geared to scientists. Summaries, books or articles that appear in the popular press (e.g., New York Times, Scientific American, Time Magazine, etc.) or are geared to the lay public (e.g., Wikipedia entries, NIH summaries, websites for parents or patients) do not count.

REQUIREMENTS & GRADING

Class participation: 28 points
This is a seminar and, thus, participation of every person in each class is a critical component of the class. You can earn up to 2 points for each class.

Grading will be as follows:
- 0 points: didn't attend
- 1 point: attended, but did not contribute much to class discussion
- 2 points: attended and made substantive contributions to class discussion

Weekly "Disorder" Power Point slides: 10 points
Every week, you will make 1-2 (absolute max = 3) power point slides that summarize what "your" disorder reveals about the cognitive and/or neural bases of the topic under discussion. The full citation for your individual reading(s) for that week should be given on the first slide.

Slides must be posted to the sakai site no later than 12 pm the Tuesday before the class. Slides that are posted after Tuesday 6 pm and before Wednesday 12 pm will get ½ credit. No credit will be given for slides that are posted later than Wednesday 12 pm.

Disorder slides will be graded as follows
- 0 points: you didn't post anything or your slides are grossly inadequate
- 0.5 points: your slides are an adequate summary of the material from that week's course-wide readings and your individual readings for that week)
- 1 point: your slides are good (e.g., clear, well organized, have links to demos etc).

"Your" week: Power Point presentation & critiques: 15 points
Once during the course, you and one or two other student will create a Power Point presentation for that week's topic and be my assistants in leading that week's class. Your Power Point presentation will be based, in part, on the "Special Topic" slides that each student makes for that week. In addition to creating a Power Point presentation, you will critique each student's Special Topic slides for that week. You may create a joint Power Point presentation with the other student(s) assigned to your topic, or you may create a separate presentation.

Your Power Point presentation and critiques of the other students' Special Topic slides are due no later than 8 pm on the Wednesday before the class. You will receive ¾'s credit for presentations/critiques submitted after Wednesday 8 pm, but before the class. No credit will be given for work submitted after this point.

Weekly essays: 25 points
Most weeks you will write a short (1-2 pages double spaced) essay on that week's topic. You may use books, notes and any references you can find. Essays are due by the beginning of the following Thursday's class. Late essays will receive half credit. Essays that are more than 6 days late will receive no credit.

Grading will be as follows:
- 0 points: you didn't hand anything in, or your answer was grossly inadequate
- 1 point: your answer was adequate
- 2 points: your answer was good

Final project: 30 points
Your final project will be about your disorder, but the exact content is open. For example, it can be a broad overview of your Special Topic, an in depth investigation of what your Special Topic reveals about an one aspect of language, or an experiment you would like to conduct about your Special Topic. You will write a paper (10-15 pages) on your topic. In addition, you will give a 15-minute presentation on your project during one of the last 2 or 3 classes. Papers are due no later than Friday May 5th at 11:30 pm. Papers that are one day late will receive ¾ credit, papers that are two days late will receive ½ credit, and papers that are three days late will receive ¼ credit. Papers that are more than 3 days late will receive no credit.

Course grades will be assigned as follows:
A: 90-108 points
B+: 85-89 points
B: 80-84 points
C+: 75-79 points
C: 70-74 points
D: 60-69 points
F: < 60 points

PLAGIARISM

PLEASE DO NOT PLAGIARIZE. This is a "writing intensive" course and true to the description, there is a lot of writing in the course (weekly essays, final paper). Because this course fulfills the "writing intensive" requirement for graduation. plagiarism will be taken very seriously. If you are caught plagiarizing an assignment, you will receive a zero for the assignment and for that week's class participation. Depending on the egregiousness of your plagiarism, I reserve the right to lower your final grade beyond the forfeited points, and/or notify your dean about the plagiarism.

WHAT IS PLAGIARISM?

1. If you copy word for word something that is in print ANYWHERE (books, journals, popular magazines, on-line. blogs, mailing lists etc.), you are plagiarizing. It is still plagiarism even if you cite the source.
2. Taking someone else's words and substituting a word here or there is still plagiarism.
3. Paraphrasing someone else's words, but 'borrowing' their line of argument and reasoning is plagiarism.
4. For more guidelines on plagiarism, see http://wire.rutgers.edu/research_plagiarism.html

Plagiarism & Power Point Slides. When it comes to Power Point slides, it isn't always clear what constitutes plagiarism. Here are some rules of thumb:

1. It is ok to use other people's slide general layout/templates
2. It is ok to use copyrighted scientific figures and images, however you must indicate the source. . In some cases the image may even be the majority of the slide.
3. is ok to use copyighted non-scientific images (e.g., generic pictures of people) without attribution.
4. It is NOT ok to take someone else's slide outright.
5. If the essence of your slide is the same as someone else's, it may be plagiarism even if you have changed the layout, wording and images.

Remember: Plagiarism is stealing. Better to hand in something that is yours but not polished, than to hand in something that is perfect but stolen.

SOME RESOURCES FROM THE WEB

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

Author: John W. Sundsten
Institution: University of Washington, Seattle.
2-D and 3-D views of the brain from cadaver sections, MRI scans, and computer reconstructions.
http://www9.biostr.washington.edu/cgi-bin/DA/PageMaster?atlas:Neuroanatomy+ffpathIndex:Splash^Page+2

Sundsten & Mulligan's interactive neuroanatomy syllabus:
http://www9.biostr.washington.edu/cgi-bin/DA/PageMaster?atlas:NeuroSyllabus+ffpathIndex:Splash^Page^Syllabus+2

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

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

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/info/ling-index.cfm

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

Cognitive Neuroscience Arena (click tab on top of page, and then go to bottom of page to see the results)
http://www.cognitiveneurosciencearena.com/

Handbook of Neuroscience for the Behavioral Sciences
http://onlinelibrary.wiley.com.proxy.libraries.rutgers.edu/book/10.1002/9780470478509

FINDING SPECIAL READINGS

[You can get an overview on how to find an article at RU, by going to the following URL]
http://www.libraries.rutgers.edu/rul/how_do_i/find_an_article.shtml

1) Do a search of the library's indexes and database.

1. Go to the following URL:
   http://www.libraries.rutgers.edu/rul/indexes/findarticles.shtml
2. Go to the link that says "Indexes and Databases"
   http://www.libraries.rutgers.edu/rul/indexes/indexes.shtml
   This lists all of the indexes and databases that RU subscribes to in alphabetic order and by subject.
3. For most of you, the most relevant databases will be:
   PsycInfo:
   http://www.libraries.rutgers.edu/rul/indexes/search_guides/psycinfo.shtml
   Medline: http://www.libraries.rutgers.edu/rul/indexes/search_guides/medline.shtml
   It is also not a bad idea to check the "by subject" to see if there are any additional or more specialized databases you should search.
4. Once you choose your database, login in by hitting the CONNECT button. You will be prompted to provide keywords or phrases.
5. The default search is a Keyword search. If "Map terms onto subject headings is "clicked", your terms will be used to find matching subject headings, a strategy that sometimes is useful when you are just beginning
6. If you want to search for a particular author, click the author icon, and then provide the last name of the author and the author's first initial.
7. If you "unclick" "map term to subject heading", the system will yield matches where that word appears in the journal title, author, journal title or abstract.
8. If you get too many hits, you can use the "LIMIT" function to limit your search to particular years, articles with abstracts, review articles, age groups, population groups (e.g., animals vs. humans), publication type etc. For example, if you merely search for "autism" on PsycInfo, you will get 16155 hits … far too many to even read the abstracts of. But let's say I am interested in animal models of autism, and only want articles written in English, with an abstract. By limiting my search to English, abstract and animal, I get a semi-manageable 205 hits.
9. Another strategy for when you get too many hits is to use the COMBINE function to combine the results of two or more searches. For example, on PsychInfo, combining the searches for "autism" with "genetics" yields too msny hits. Combining "autism", "genetics" and "twin" will pick out the articles that have all 3 words, in this case a manageable number of hits.
10. Once you have found a reference for something that appears in a journal, see if Rutgers has an electronic version of the journal by going to the following URL:
    http://www.libraries.rutgers.edu/rul/rr_gateway/ejournals/ejournals.shtml
    Most of the time you will be interested in electronic journals, not electronic government journals.
11. Even if the RU Library does not have the electronic version of the journal, they may have a hard copy version of the journal. You can check this by going to:
    http://www.libraries.rutgers.edu/rul/how_do_i/subscribes.shtml
12. A good summary of databases available to Rutgers students can be found at the following URL and its links: http://libguides.rutgers.edu/referencecontents

2) Searchlight. Use the RU library's "searchlight" function (which includes Web of Science) at the following URL:

http://www.libraries.rutgers.edu/rul/searchlight/searchlight.shtml

3) Citation Index. Look through the reference section of the textbook. Find an older, "classic" source, and then find more recent articles that have cited it using "Google Scholar" or RU's Science Citation Index

http://www.libraries.rutgers.edu/cms/indexes/descriptions/science_citation_index

4) Wikipedia. Check out the papers cited in the Wikipedia pages. Remember, you must read the papers Wikipedia article cites and not just the Wikipedia page.