University of Arizona  
Spring 2012  

LING/PSYCH/PHIL 449/549 A  
Biolinguistics  

Monday and Wednesday 4.30 pm – 5.45 pm  
Social Sciences 118  

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Office hours: Tuesday 11 am-12 pm, or by appointment.  

Syllabus  

This course will cover both Biolinguistics in the narrow sense (what also goes under the name of Neurolinguistics) and in a broader sense (following Chomsky’s characterization of generative grammar as “part of biology, at a suitable level of abstraction”). We will start with data and rationales explaining why we are justified in thinking that there is a biology of language. We will then proceed to highlight the right ways to do a genuinely modern biolinguistics. We will then proceed to an analysis of language pathologies. The first historical observations by Paul Broca and Carl Wernicke have been greatly refined (the Boston Diagnostic Aphasia Examination) and we will then see the best syntactic analyses of agrammatic aphasia - Josef Grodzinsky, Naama Friedmann, Luigi Rizzi, Sergey Avrutin, Nino Grillo and others). Next we will examine “mirror” pathologies”, that is, cases where language is intact, but general intelligence is affected such as Specific Language Impairment (SLI), Williams Syndrome, Spina Bifida, and the case of the savant Christopher. We will then proceed to the genetics of language (over 100 genes identified already, with various links to various linguistic components). We will then see in some detail the case of the (alleged) “language gene”, that is, FOXP2, a very interesting case that Juan Uriagereka and I have defined “a geneticist’s dream and a linguist’s nightmare”, for reasons that will, I hope, be made evident. Then we will broaden the picture and enter the vast issue of language evolution. We will review arguments that claim to show that language been “selected for” communication in a canonical neo-Darwinian adaptive process (Philip Lieberman, Steven Pinker, Paul Bloom, Ray Jackendorff, Derek Bickerton, Michael Arbib, Eva Jablonka and Marion Lamb, and more). We will also review less orthodox approaches that purport to show that language is the result of a co-evolution of language and brain (Terrence Deacon, David Briscoe, Christiansen and Chater et al.). Some more formal approaches to language evolution, of a mathematical kind, will be briefly reviewed (Martin Nowak and co-authors). After seeing why none of these approaches does work, we will proceed to more promising avenues of inquiry. We will briefly review the main reasons why orthodox neo-Darwinian adaptationism has been marginalized (or altogether left aside) in modern biology (as a result of the Evo-Devo revolution and of many interesting mechanisms of evolution recently discovered), we will see the reasons for, and the consequences of, the return in biology of the laws of form. Promising parallels with the Minimalist Program will be detailed and new ways of approaching the biological foundations of language and language evolution will be offered.
Grade assignments: Letter grades

Class participation  
and weekly assignments  30%
Mid-term (undergrads)  
or class presentations (grads)  30%
Final paper  40%

Attendance will be considered mandatory. Standard UofA policies will be adopted for plagiarism, behavior, religious holidays etc. The difference between senior undergraduates and graduates will be in the evaluation of the level of the weekly assignments and the final paper.

The readings listed below are in the reserve of our class d2l website (but more recent and relevant publications at the time of the lecture may be added, or may replace some of those listed here):

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<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<tr>
<td>Date</td>
<td>Event Description</td>
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| February 1 and 6 | (1): Aphasia in general and (2) Linguistic analyses of Broca’s aphasia Two lectures by Deniz Tat | Carlo Semenza, Marina Zettin & Francesca Borgo (1998): *Names and identification: An access problem*, Neurocase, 4:1, 45-53  
<p>| February 13 and 15 | Specific Language Impairment |  |</p>
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<tr>
<th>Date</th>
<th>Topic and Details</th>
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<td>March 12 and 14</td>
<td>SPRING RECESS</td>
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| March 19 | On the Modularity of Language  
Lecture by Prof. Thomas G. Bever | Susan Curtiss (in press)  
Hauser, M. D., N. Chomsky, and T. Fitch. (2002). *The faculty of* |
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<th>Date</th>
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<tr>
<td>May 2nd</td>
<td>Wrap up</td>
<td>Some very recent papers TBA</td>
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*Weekly reflection papers:* Are due by the “next” Monday 7pm (the Monday after they have been assigned in the lecture the previous Monday). 1 page standard format, preferably in pdf.
Mid-term: Undergraduates only: The mid-term will be a personal critical reasoned summary-reflection (of about two pages) of material presented in class (and/or in the readings) up to that moment. It is due by Monday March 19 at 7pm.

Final paper
Approximately 10 pages long, on a “personalized” topic to be individually chosen with me. It can be a critical summary of the literature, or a personal reflection paper, or the design of an experiment. Deadline: Monday May 7 at 7pm.

Additional basic references (not in the reserve, please do ask me)

Language deficits

Mirror deficits

The case of FOXP2

Language evolution
See my review of this book
Christiansen, M. H. and N. Chater (2008). "Language as shaped by the brain." Behavioral and Brain Sciences 31: 489-558. (see a commentary therein by Tom Bever, Roeland Hancock and me)

Formal approaches to language evolution
The Laws of Form
Turing, Alan. 1952. The chemical basis of morphogenesis. Philosophical Transactions of
Fractal geometry and allometric scaling of organisms." Science 284 (1677-1679).