Computational Psycholinguistics
Psych/CogSt 4280/6280 - Ling 4428/6628
Fall 2015
205 Uris Hall - Tuesdays, 1:25-4:00PM
http://courses.cit.cornell.edu/psych428/

Instructor: Dr. Morten H. Christiansen
Office: 228 Uris Hall
Email: christiansen@cornell.edu
Office Hours: Tuesdays 12Noon–1:00PM and by appointment

Computational methods have become increasingly important to the study of the psychology of language as a way of gaining insights into the psychological processes involved in language processing, acquisition, and evolution. They provide rigorous tools for testing and exploring specific hypotheses about the nature of language and its psychological underpinnings. As such, computational psycholinguistics has already had a far-reaching impact on language research. In this course, we survey the state of the art in computational psycholinguistics, ranging from corpus analyses of child-directed speech, dialogues and online interactions, to Bayesian, connectionist and phylogenetic models of language. An important focus of discussion will be the various methodological and theoretical issues relating to the use of computational tools to understand the psychology of language.

Learning goals: To provide a comprehensive introduction to questions, theories, and research in computational psycholinguistics. At the end of this seminar, students are expected to be able to think critically about research and theories related to computational approaches to psycholinguistic phenomena.

Course Requirements

1. Complete ALL assigned readings.
2. Lead discussion on one or more occasions (the exact number will depend on number students registered for the class). Joint presentations are preferable and encouraged.
3. Discussion leaders should only briefly summarize the reading(s). The leader should assume that everyone has read the reading(s), and does not need to have it repeated in great detail. The discussion should focus on your elaborations of the reading(s). This involves clarifying the reading(s) (guided in part by questions submitted by other class members), critiquing the research, and including other material/viewpoints from additional articles.
4. Formulate at least one question for each assigned reading, for a total of three questions for the day's discussion leader. These are to be submitted by email to the presenter before 10AM on Mondays before class. A copy of the questions must also be emailed to the instructor (christiansen@cornell.edu).
5. Participate in the discussions. Grades will in part be based on discussion participation. Sitting silently through every class is not acceptable.
6. Write a final 15-20-page (4280/4428) or 25-30-page (6280/6628) double-spaced paper focusing on several of the topics discussed in class. This paper will require some research, and must include additional articles not discussed in class. A one-page synopsis outlining a proposed paper must be submitted to the instructor at the start of class November 10. The final paper is due December 11 before 4:30PM.

Grading

Grades will be based on class presentations, discussion participation, email questions, and the final paper.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Class presentation</td>
<td>20%</td>
</tr>
<tr>
<td>Discussion participation</td>
<td>25%</td>
</tr>
<tr>
<td>Email questions</td>
<td>25%</td>
</tr>
<tr>
<td>Final paper</td>
<td>30%</td>
</tr>
</tbody>
</table>

Academic Integrity

Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit will be the student’s own work. For this course, collaboration is allowed in the following instances: Leading discussions. Failure to adhere to the Code of Academic Integrity will result in an F in the course.
# Course Outline

* indicates extra readings for presenters and 6280/6628 students

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>8/25</td>
<td>Organizational meeting</td>
<td></td>
</tr>
</tbody>
</table>
| Week 2 | 9/1 | Psycholinguistics and computational modeling | Bernstein Ratner, Berko Gleason & Narasimhan (1998)  
| | | | Chater & Christiansen (2008)  |
| Week 3 | 9/8 | Segmentation | Phillips & Pearl (2015)  
| | | | Baayen et al. (in press)  
| | | | *French & Cottrell (2014)  |
| Week 4 | 9/15 | No class |  |
| Week 5 | 9/22 | Word learning | McMurray et al. (2012)  
| | | | Hills et al. (2009)  
| | | | *Monaghan et al. (2011)  |
| Week 6 | 9/29 | Semantic representations | Blouw et al. (2015)  
| | | | Xu et al. (2015)  
| | | | *Youn et al. (2015)  |
| Week 7 | 10/6 | Zipf's law | Piantadosi (2014)  
| | | | Ferrer-i-Cancho et al. (2013)  
| | | | *Pine et al. (2013)  |
| | 10/13 | Fall Break |  |
| Week 8 | 10/20 | Chunking | Jones (2015)  
| | | | McCauley & Christiansen (2014a)  
| | | | *Koł et al. (2014)  |
| Week 9 | 10/27 | Politeness and the linguistic change in online communities  
| | | | Guest lecture: Dr. Cristian Danescu-Niculescu-Mizil  
| | | | Danescu-Niculescu-Mizil et al. (2013a)  
| | | | Danescu-Niculescu-Mizil et al. (2013b)  |
| Week 10 | 11/3 | Acquisition of morphology | Xanthos et al. (2012)  
| | | | Mirković et al. (2011)  
| | | | *Aguado-Orea & Pine (2015)  |
| Week 11 | 11/10 | Sentence processing  
| | | | 1-page synopsis due | Johns & Jones (2015)  
| | | | Frank & Bod (2011)  
<p>| | | | *McCauley &amp; Christiansen (2014b)  |</p>
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
<th>Readings</th>
</tr>
</thead>
</table>
| Week 12 | 11/17 | Production | Dell et al. (2013)  
Montag & MacDonald (2015)  
*Arnon & Cohen-Priva (2013) |
Abney et al. (2014)  
*Healey et al. (2014) |
| Week 14 | 12/1  | Evolution | Kirby et al. (2015)  
Baronchelli et al. (2012)  
*Grouchy et al. (2015) |
|        | 12/11 |         | **Final paper due (before 4:30PM)**                                    |

**Note:** Changes may be made to the readings and their order but this will be announced in class and on the course web site.

**Readings**


