Syllabus
LING 451 – Mathematical Structures in Language – Fall 2010

Course information

<table>
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<tr>
<th>Instructor:</th>
<th>Course:</th>
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<tr>
<td>Jeff Heinz</td>
<td>Linguistics 451 Mathematical Structures in Language</td>
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<tr>
<td><a href="mailto:heinz@udel.edu">heinz@udel.edu</a></td>
<td>Lectures: MW 2:30 - 3:45pm</td>
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<tr>
<td>302-831-2924</td>
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<td>42 E. Delaware, room 102</td>
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There is a class website with material posted to it. This site is

http://phonology.cogsci.udel.edu/~heinz/classes/2010/4-651/

Learning Goals

Programmatic Learning Goals for the B.S. In Cognitive Science

By the end of the Cognitive Science Major, students will...

1. Communicate scientific ideas and methods (i.e., discuss and solve scientific problems and/or provide data or arguments in support of a scientific hypothesis) clearly and effectively, both orally and in writing. (Gen Ed Goal 1)

2. Critically assess scientific research (primary source articles and/or lab reports), methods, and/or problem solving related to cognitive science, linguistics, and speech pathology. (Gen Ed Goal 2)

3. Synthesize multiple methodological or disciplinary research perspectives to analyze a scientific problem and make improvements that advance the issue, debate, or research.
Learning Goals for Ling 451

LING 451 provides an introduction to the mathematical study of language. We characterize natural language patterns in terms of sets, relations and functions and study their properties. This course considers sound patterns (phonology), word patterns (syntax) and the meaning of phrases and sentences (semantics), and the acquisition of natural language patterns, all from the mathematical perspective. Special emphasis is placed on hypothesized universal properties of natural language patterns.

By the end of this course, students will be able to . . .

1. Understand foundational mathematical concepts and how they can be applied to the study of natural language. (Programmatic Goals 2,3; Gen Ed Goals 1, 2, 5, 6, 7, 8).

2. Understand how strong, abstract hypotheses of natural language universals can be formulated through the mathematical analysis of natural language. (Programmatic Goals 2,3; Gen Ed Goals 1, 2, 5, 6, 7, 8).

3. Communicate, clearly and effectively, foundational mathematical concepts and how they can be applied to the study of natural language (Programmatic Goals 1; Gen Ed Goals 1).

4. Learn and think independently and collaboratively. (Gen Ed Goal 3)

Text

Required

- Mathematical Structures in Language. Edward Keenan and Larry Moss. MS.

- Additional required readings will be posted on the website.

Other useful texts


**Grading**

<table>
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<tr>
<th>Homework &amp; Participation</th>
<th>50%</th>
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<tr>
<td>Exam 1</td>
<td>20%</td>
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<tr>
<td>Exam 2</td>
<td>30%</td>
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**Homework & Participation** There will be a weekly HW assignment, except in the weeks preceding exams. These are due the next class after they are assigned. Participation in class is expected.

**Exam 1** The first exam is scheduled approximately half way through the semester.

**Exam 2** A second exam is scheduled at the end of the semester. While this exam focuses on material in the second half of the semester, it is cumulative in the sense that

**Policies**

• NO LATE WORK ACCEPTED. The highest grade for an assignment turned in late is 0%. If you notify me in advance with very good reasons, it is possible I may relax this on a case by case basis.

• Please submit work as hard copies (not as email attachments).

• No cell phones in class (set to vibrate or turn off).