

LING 106: Introduction to Formal Linguistics

Syllabus, Spring 2009

Instructor: Lance Nathan
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1. COURSE DESCRIPTION

The goal of this course is to define certain formal properties that underlie the architecture of language. To this end, mathematical tools are provided that help us understand and classify the complex structures and rules that constitute language and grammar. These tools include set theory, propositional logic, information theory, formal language theory, automata theory, as well as a brief introduction to the semantics of natural language.

2. READINGS AND TEXTS

Textbook: None. Handouts to be made available.

3. REQUIREMENTS AND GRADE

Homework assignments (weekly)	60%
Midterm and final exams	30%
Attendance and class participation	10%

Violations of academic integrity will be taken seriously!

It is your responsibility to understand the University's policy.
See your Class Handbook, the university's website, etc.

Unless explicitly told otherwise, you may not collaborate on homework. All assignments must be done individually. Homework is due by the end of class on the specified date, where "due" means "in my possession", either by handing me a hard copy or emailing me a PDF.

Late policy on homework: three days over the course of the semester. (No partial days.) Any lateness beyond these three days will result in a ten-point-per-day penalty.

The exams will likely be take-home. Late days cannot be used for take-home exams.

4. OTHER USEFUL FACTS

Webpage for the course: <http://www.ling.upenn.edu/~nathanla/ling-106/>

Office hours: By appointment. (Evenings are entirely possible, especially but not limited to Monday evenings.)

5. ORGANIZATION AND OUTLINE OF THE COURSE

0. Introduction to Formal Reasoning		
Week 1	January 14	1. Formal Reasoning: Shapes 2. Set Theory
I. Isolating linguistic units		
Week 2	January 21	3. Lexical Analysis
Week 3	January 28	4. The Lexicon and Harris's Conditions
Week 4	February 4	5. Ciphers 6. The Decipherment of Linear B
II. Syntax (and Phonology): building strings of units		
Week 5	February 11	7. Syntax: the Basics 8. Deterministic Finite-State Automata
Week 6	February 18	9. Regular Languages and Regular Operations
Week 7	February 25	10. Non-Deterministic Finite-State Automata
Week 8	March 4	11. The Pumping Lemma <i>March 11: Spring Break – No Class</i>
Week 9	March 18	12. Beyond Regular Grammars (“The Onion”)
Week 10	March 25	13. Syntax Done Right 14. Phonology and Finite-State Transducers
III. Semantics: interpreting the meaning of strings of units		
Week 11	April 1	15. Propositional Logic
Week 12	April 8	16. Predicate Logic
Week 13	April 15	17. Pragmatics
Week 14	April 22	Review and/or time to catch up