

## Sample Syllabus: Formal Logic

### *Instructor*

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Office: South Hall 5719

Hours: Mondays and Thursdays, 3:30 PM to 4:30 PM

I am also available by appointment. Please give me at least 24 hours' notice.

### *Course Description*

This course is an introduction to deductive logic (i.e., the study of *truth-preserving* reasoning). We will study, among other things, how to distinguish valid from invalid inferences, identify when statements are consistent or inconsistent, and prove conclusions from sets of premises. We will begin with an informal characterization of certain logical concepts (e.g., those of validity, consistency, logical truth, etc.), before moving on to a more rigorous, formal characterization using an artificial symbolic language. Using this formal language, we will learn to symbolize natural language sentences and arguments (reflecting their logical structure), determine the logical properties of (and relations between) symbolic sentences, and derive conclusions from sets of premises using a formal, deductive method of proof.

### *Required Text*

We will be using *The Logic Book* (Sixth Edition) as our textbook, which is available at the UCSB Bookstore. A few copies will also be on reserve at the library.

M. Bergmann, J. Moor, and J. Nelson, *The Logic Book* (Sixth Edition), McGraw-Hill, New York 2014 (Original 1980).

Our plan is to work through chapters 1, 2, 3, 5, 7, 8, and 10. These chapters cover an introduction to deductive logic, as well as the syntax, semantics, and derivation system for our formal language *Sentential Logic* and its extension *Predicate Logic*.

### *Course Requirements*

Here is the grading breakdown with tentative dates:

Nine weekly homework assignments – 18% (2% each) – Due Tuesdays

Section participation – 5% – See TA for details

One midterm exam – 32% – Thursday February 16<sup>th</sup>, 2017 in class

One (cumulative) final exam – 45% – Tuesday March 21<sup>st</sup>, 4:00-7:00 pm

Extra credit may be offered at the instructor's discretion. You may work together on homework problems, but you should be comfortable solving them on your own. Some homework and exam problems are adapted from exercises in the textbook. Homework will receive either full credit (for completion), half credit, or zero credit. Answers will be posted the week after.

### *Schedule*

We will try, as far as possible, to keep to the following tentative schedule:

<u>Week</u>	<u>Topic</u>	<u>Reading</u>	<u>Assignments</u>
1	Introduction to Deductive Logic	Chap. 1 (all)	HW1: Core Logical Concepts
2	The Syntax of <i>Sentential Logic (SL)</i>	Chap. 2-2.2	HW2: The Syntax of <i>SL</i>
3	Symbolization in <i>SL</i>	Chap. 2.3-2.4	HW3: Symbolization in <i>SL</i>
4	The Semantics of <i>SL</i>	Chap. 3-3.5	HW4: Truth-Tables for <i>SL</i>
5	The System <i>Sentential Derivation (SD)</i>	Chap. 5 (all)	HW5: Derivation in <i>SD</i>
<b>Midterm: Thurs 2/16 in class</b>			
6	The Syntax of <i>Predicate Logic (PL)</i>	Chap. 7-7.2	HW6: The Syntax of <i>PL</i>
7	Symbolization in <i>PL</i>	Chap. 7.3-7.4	HW7: Symbolization in <i>PL</i>
8	The Semantics of <i>PL</i>	Chap. 8-8.4	HW8: Interpretations for <i>PL</i>
9	The System <i>Predicate Derivation (PD)</i>	Chap.10-10.3	HW9: Derivation in <i>PD</i>
10	Catch Up and Review		

### **Final Exam: Tues 3/21 at 4 pm**

#### *Disability Policy*

If you need accommodations, please speak to me in advance and make arrangements with Disabled Students Services (DSP) at <http://dsp.sa.ucsb.edu>.

#### *Academic Integrity*

Academic dishonesty will be severely punished. For more info on what constitutes academic dishonesty, see [judicialaffairs.sa.ucsb.edu/AcademicIntegrity.aspx](http://judicialaffairs.sa.ucsb.edu/AcademicIntegrity.aspx).

#### *Final Note*

Please feel free to bring any concerns about the course to my attention. This syllabus is liable to change, and you are responsible for any changes given adequate notice. If you miss a class, it is your responsibility to find out what you missed.