

INTRODUCTION TO MATHEMATICAL LOGIC

Texts

H. Pospesel, *Introduction to Logic: Propositional Logic*, Revised Third Edition (Prentice-Hall, pb; includes a CD-ROM containing a program called *PropLogic*).

Course-pack in seven chapters, on Blackboard.

Office hours and contact information

Wednesdays, 2:00 - 4:30, or by appointment; Caldwell 215B.
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Assignments

There will be two midterm exams (the first worth approximately 20% of your final grade, the second 25%), and a final exam (40%). Each exam will be preceded by a warmup quiz (5%). There will also be very short weekly take-home assignments, required but ungraded.

Syllabus

January 10, 12, 14: What logic is. Arguments and validity. *Reading:* Pospesel, Ch. 1.

January 19, 21: Argument forms and logical notation. Simple rules of inference. *Reading:* Pospesel, Chs. 2 and 3.

January 24, 26, 28: Subproofs. The Arrow-In Rule. *Reading:* Ch. 4.

January 31, February 2, 4: Negation. The Dash-In and Dash-Out Rules.
Friday, **February 4: Quiz #1**. *Reading:* Ch. 5.

February 7, 9, 11: The biconditional. Friday, **February 11: Midterm #1**.
Reading: Ch. 6.

February 14, 16, 18: Disjunction: Wedge In and Wedge Out. Harder proofs: “Inspiration.” *Reading:* Pospesel, Ch. 7, and course-pack, Ch. 3 (“Two More Proofs...”).

February 21, 23, 25: Harder proofs, continued; Sleaze. *Reading:* Pospesel, Ch. 8; course-pack, Ch. 4 (“Some Freebies”).

February 28, March 2, 4: Derived rules. *Reading:* Pospesel, Ch. 9.

March 14, 16, 18: Truth tables. *Reading:* Pospesel, Ch. 10, sec. 10.1.

March 21, 23, 25: Brief truth tables. Friday, **March 25: Quiz #2**.
Reading: Pospesel, Ch. 10, sec. 10.2.

March 28, 30, April 1: Metatheory: Soundness (consistency) of the system **PL**. Friday, **April 1: Midterm #2**. *Reading:* Pospesel, Appendix 1, pp. 216-22.

April 4, 6, 8: Metatheory, continued: Algorithms; the idea of completeness. *Reading:* Pospesel, Appendix 1, pp. 222-28; this is *very hard* and you are not responsible for the details.

April 11, 13, 15: Predicate logic; quantifiers. *Reading:* Course-pack, Ch. 5 (“The Predicate Calculus...”), pp. 1-5; Ch. 6 (Pospesel excerpt), pp. 6-19.

April 18, 20: Quantifier rules: Universal Quantifier Out, Existential Quantifier Out, Existential Quantifier In. *Reading:* Course-pack, Ch. 5, pp. 5-12; Ch. 6, pp. 20-33.

April 25, 27: Universal Quantifier In. Wednesday, **April 27: Quiz #3**.
Reading: Course-pack, Ch. 5, pp. 12-18.

Final exam, Friday, May 6, 8:00 a.m.

Honor code

The Chancellor has asked faculty to include the following statement in all course syllabi.

The Honor Code prohibits lying, cheating or stealing when these actions involve academic processes or University, student or academic personnel acting in an official capacity. The Campus Code requires students to conduct themselves in such ways as not to impair the welfare or the educational opportunities of others in the University community. As a UNC student, you have accepted a commitment to the Honor Code and the Campus Code, and the principles of academic integrity, personal honesty, and responsible citizenship on which they were founded more than 100 years ago.

Academic dishonesty in any form is unacceptable, because it circumvents the purpose of the University's life and work. As a faculty member, I have a responsibility to report any possible Honor Code violations to the Student Attorney General. I trust that you will join me in supporting the Honor Code by signing the Honor Pledge on all written work, and by consulting me if you are uncertain about your responsibilities within Philosophy 155.

I endorse this statement emphatically. Thank you.