

(HONORS) INTRODUCTION TO MATHEMATICAL LOGIC

Text

M. Bergmann, J. Moor and J. Nelson, *The Logic Book*, 4th edition
(McGraw-Hill, hb, used).

Lecturer's office hours

Wednesdays, 1:30 - 3:30 p.m., or by appointment; Caldwell Hall 215B.
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Assignments

There will be two midterm exams (25% each) and a final (40%). There will also be some very short weekly take-home assignments (ungraded but non-optional, collectively worth 10%).

Approximate(!) syllabus

January 12, 14: What logic is. Arguments and validity. *Reading:* Ch. 1 of the textbook.

Wednesday, January 21: Argument forms and logical notation. *Reading:* Ch. 2.

January 26, 28: Simple rules of inference. Subproofs. The rule of Conditional Introduction. Negation and disjunction. The biconditional. *Reading:* Ch. 5, pp. 160-84.

February 2, 4: Harder proofs. *Reading:* Ch. 5, pp. 184-219.

February 9, 11: Derived rules. Wednesday, **February 11: Midterm #1**.
Reading: Ch. 5, pp. 219-29.

February 16, 18: Truth tables and shortened truth tables. *Reading:* Ch. 3.

February 23, 25: Metatheory: Soundness (consistency) of the system *SD*.
Reading: Ch. 6, pp. 230-256.

March 2, 4: Metatheory, continued: Algorithms. Completeness of *SD*.
Reading: Ch. 6, pp. 256-65.

Spring Break. Wine, significant others, and song.

March 16, 18: Predicate logic; quantifiers. *Reading*: Ch. 7.

March 23, 25: Quantifier rules. *Reading*: Ch. 10.

March 30, April 1: Overview of metatheory for the predicate calculus.
Wednesday, **April 1: Midterm #2**. *Reading*: Ch. 8, pp. 368-80;
Ch. 10, pp. 576-600, but you are not responsible for the details.

April 6, 8: Metatheory overview, continued. *Reading*: Ch. 10, pp. 601-18,
but you are not responsible for the details.

April 13, 15: Modal logic. *Reading*: A.N. Prior, "Logic, Modal"; WGL,
["Modal Systems and the Accessibility Relation."](#)

April 20, 22: Epistemic logic and deontic logic. *Reading*: W. Lenzen,
Recent Work in Epistemic Logic, sections 4.1, 4.2, 5.1; A.N. Prior,
"Logic, Deontic." *Recommended*: A. Al-Hibri, *Deontic Logic*, Ch. 2.

April 27: Paradoxes. *Reading*: W.V. Quine, "The Ways of Paradox." *Just
for fun*: W.V. Quine, "On a Supposed Antinomy"; R. Smullyan,
What is the Name of This Book?, Chs. 3, 7, 16.

Final exam: Monday, May 4, 8:00 a.m.

Honor code

Chancellor Thorp has asked me to include the following statement.

Academic dishonesty in any form is unacceptable, because any
breach in academic integrity, however small, strikes destructively at
the University's life and work.

The Honor Code and the Campus Code, embodying the ideals of academic honesty, integrity, and responsible citizenship, have for over 100 years governed the performance of all academic work and student conduct at the University. Acceptance by a student of enrollment in the University presupposes a commitment to the principles embodied in these codes and a respect for this most significant University tradition.

Your participation in this course comes with my expectation that your work will be completed in full observance of the Honor Code.

If you have any questions about your responsibility or my responsibility as a faculty member under the Honor Code and as the instructor in this course, please bring them to me, or consult with someone in either the office of the Student Attorney General or the Office of the Dean of Students.

I endorse this statement emphatically. Thank you.