

# Syllabus for Math 39, Fall 2007

## Introduction to Logic

**Instructor:** Rebecca Weber

**Office:** 317 Kemeny Hall, 646-1720 (better to e-mail)

**Office Hours:** W 2:00–3:30, Th 10:30-12:00, and by appointment

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**Office:** 211 Kemeny Hall, 646-9805 (better to e-mail)

**Office Hours:** MW 4:00-5:00 and by appointment

**Webpage:** [www.math.dartmouth.edu/~m39f07](http://www.math.dartmouth.edu/~m39f07)

**Course Meets:** 12 hour, 12:30-1:35 MWF, 013 Silsby Hall

**X-hour:** Thursday 12:00-12:50

**Textbook:** *A Mathematical Introduction to Logic*, second edition, Herb Enderton

### General Information

ORC: *This course begins with a brief treatment of sentential logic and then concentrates on first-order logic. Both proof theory and model theory are taken up. The course ends with a proof of the Gödel incompleteness theorem. Connections with the philosophy of mathematics are discussed.*

We'll do our best to accomplish that, perhaps a little jazzed up, and tailor examples and asides to the interests and background of the members of the class. For example, if everyone has had some group theory we may give examples related to groups.

### Course Organization

Lecture and discussion. Much of this material is easy to explain but requires effort to become conversant with, which is only accomplished by tinkering with examples. Questions about everything from minute details to the overall picture are encouraged; while we do have a goal, as this course is not prerequisite to anything it matters less that we reach the goal and more that we gain a solid understanding of first-order logic.

X-hour will be used occasionally for supplemental material or topics outside the main flow of the lectures.

### Attendance

In a small discussion-oriented course participation is a significant component. I won't count your absences but I will keep track of you. See *Grading*, below.

### Homework

There will be homework approximately weekly. It may be out of the book or it may be on a handout, or a combination. Please put your name and the due date on each page of your write-up and number the pages. Identify each problem by section and number, and please state the problem before giving your solution (you may condense the original wording when appropriate). Write legibly or type (Brooke and I are both happy to help

if you wish to do write-ups in LaTeX; if you are considering graduate school this is an especially useful bit of knowledge) and leave plenty of room for comments.

Grading (per problem) will be on a scale of 0 to 5, as follows:

- 5: The problem and the solution are explained thoroughly, clearly, and completely. It is easy to read and understand, is correct, and contains nothing extraneous. It shows a deep understanding of the problem, includes all necessary details, and addresses any subtleties. Scores of 5 will be assigned very selectively.
- 4: The solution is correct and written up clearly and completely, with at most minor omissions, tangents, or errors.
- 3: Either the solution is correct but unclearly written, or it is clear but only partially correct, with some significant error.
- 2: The solution is only partially correct, with some significant error, and the explanation is also unclear, incomplete, or includes nonsense, irrelevancies, or egregiously misused terminology or notation. A 2 may also be given for a good explanation of a completely incorrect solution, or a strong attempt at a solution which did not get anywhere.
- 1: It is apparent some reasonable attempt was made to solve the problem.
- 0: No attempt was made or what is written is so incoherent that it fails to communicate the fact that an attempt was made.

You may interpret the numbers roughly as letter grades, where 4 is an A, 3 a B, etc.

## Exams

There will be one midterm and a final exam. They will each be part in-class and part take-home, with the take-home portion to be written up in the same way as homework. Grading for the take-home portion will have the same standards as the homework, while the in-class portion will take only content into account (provided the manner in which it is written allows one to discern the content). More may be said on format when the exams are impending.

The in-class part of the midterm will be on **Friday, October 26**. If you have a conflict (excused absence) let me know as soon as possible. The registrar has scheduled our final exam for **8:00 AM, Monday, December 10**.

## Grading

Your course grade will be based on:

class participation (10%),  
written homework (30%),  
in-class exam (25%), and  
a final exam (35%).

Class participation grades will be based on the following: Are you present in class? Are you prepared? If the class divides into small groups, do you fully participate in your group's work? Do you contribute to class discussions, or present homework solutions to the class, when you are asked to? Class participation grades are not based on whether you talk a lot or say brilliant things, but whether you contribute regularly and meaningfully.