

## Class Information

### *Mathematical Logic*

Math 114L, Spring Quarter 2008

MWF 9–9:50am, Mathematical Sciences Building 5217

**Instructor:** Matthias Aschenbrenner

**E-mail:** matthias@math.ucla.edu

**Course webpage:** <http://www.math.ucla.edu/~matthias/114l.1.08s>

**Office:** Mathematical Sciences Building 5614

**Office phone:** (310) 206-8576

**Office hours:** M 10–11:50am, W 3–3:50pm, or by appointment.

(I will *not* hold ‘virtual’ office hours.)

**Discussion section:** Th 9-9:50am, Mathematical Sciences Building 5127

**Teaching assistant:** Anush Tserunyan

**Course text:** *A Mathematical Introduction to Logic*, Second Edition, by Herbert B. Enderton, Academic Press, 2001.

**Description:** The main objective of this course is to introduce you to mathematical logic through the study of two of its aspects:

1. Pure logic: Sentential logic and first-order logic, culminating in the proof of Gödel’s Completeness Theorem (not to be confused with Gödel’s Incompleteness Theorems).
2. Basic model theory: Applications of the Completeness Theorem, including the Löwenheim-Skolem Theorems, the Compactness Theorem; and a discussion of elementary equivalence.

**Prerequisites:** The ability to formulate mathematical proofs. For this reason, you should have had some exposure to proof-writing before taking this course. Some knowledge of linear algebra or abstract algebra would also be useful, but is not strictly necessary. Please feel free to contact me if you’d like to take this course, but are unsure whether you have the right preparation.

**Homework:** One of the main goals of this course, in my eyes, is to teach you how to read mathematical texts, and how to formulate clear mathematical arguments yourself. Since this is best done without time pressure, homeworks provide the ideal medium to practice your proof-writing skills.

There will be a problem set assigned every week. The problems will range in difficulty from routine to more challenging. Completed solutions are to be handed in at the beginning of class on the due date specified on the respective homework set.

**No late homework will be accepted.**

However, your lowest homework score will be dropped when computing your grade. You are encouraged to work together on the exercises, but any graded assignment should represent your own work.

Put the following information in the upper right hand corner of the first page:

*Your Name*

Math 114L, Homework #  $x$

On each additional page, put your name in the upper right-hand corner. Work single-sided, that is, write on only one side of each sheet of paper. STAPLE any homework that is more than one page long. Remove all perforation before submitting. Write legibly.

**Homework that fails to meet the above requirements will be marked “Unacceptable” and returned unread.**

More detailed instructions about the homework will be provided on a separate handout.

**Exams:** There will be two Midterm examinations, on *Monday, April 21* and *Monday, May 19*, in class. There will be a final exam on *Tuesday, June 10*, 11:30am-2:30pm, location to be announced.

**Students with conflicts with the Midterm Exam in this course are responsible for discussing makeup examinations with me no later than two weeks prior to the exam.**

No books, calculators, scratch paper or notes will be allowed during exams.

**Grading policy:** Homework: 20%. Midterm Exams: 20% each. Final: 40%.

All scores and final grades will be available on the MyUCLA gradebook.

**Letter grades:** Roughly computed as follows:

A = 90–100%, B = 80–89%, C = 70–79%, D = 60–69%, F = below 60%.