Class Information for

Formal Logic

Math 430, Fall 2004
MWF 9–9:50, 219 Taft Hall

Instructor: Matthias Aschenbrenner

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Course webpage: `http://www.math.uic.edu/∼maschenb`
(follow the link to Math 430)

Office: 616 SEO

Office phone: (312) 413-2163

Office hours: MWF 10–11am, or by appointment.

Recommended text: H.-D. Ebbinghaus, J. Flum, W. Thomas, *Mathematical Logic,* 2nd ed., Springer-Verlag.

Syllabus: The main objective of this course is to introduce you to first-order logic and study various aspects of it:

1. **Pure Logic:** Syntax and semantics of first-order languages. The Completeness Theorem.

2. **Basic Model Theory:** Löwenheim-Skolem Theorems. Compactness Theorem. Elementary equivalence.

3. **Fundamentals of the theory of computability:** Enumerability & decidability. Register machines. The halting problem. Undecidability of first-order logic. Gödel's Incompleteness Theorems.

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. Therefore: Homework will be assigned every two or three weeks, handed out in class and due at the beginning of class. Up to 3 individuals may work together on homework problems (and I encourage you to do so), but when you turn in the problem set you should acknowledge that you have collaborated.

No late homework will be accepted.

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

Your Name

Math 430, Homework # x

On each additional page, put your name(s) 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.

Midterm exams: There will be two midterm examinations, in class, on *Friday, September 24,* and on *Friday, November 5.* **No make-up exam will be given.**

Final exam: *Tuesday, December 7, 8-10am,* at a place to be determined.

Students with final examinations which conflict with the Math 430 final examation are responsible for discussing a makeup examination with me no later than 12/03.

No books, calculators, scratch paper or notes will be allowed during exams. Students are expected to be thoroughly familiar with the University's policy on academic integrity. The University has instituted serious penalties for academic dishonesty. We have encouraged you to work with your classmates on homework. Regarding homework, midterm exams, and the final examination:

Copying work to be submitted for grade, or allowing your work to be submitted for grade to be copied, is considered academic dishonesty.

It is University policy that students with disabilities who require accommodations for access and participation in this course must be registered with the Office of Disability Services.

Grading policy: Homework: 20%. Midterms: 20% each. Final: 40%.

Letter grades: Roughly computed as follows: A = 90–100%, B = 80–89%, C = 70–79%, D = 60–69%, E = below 60%.