Class information for

Model Theory

Math 506, Spring 2004
Monday, Wednesday, and Friday, 11–11:50am,
300 Lincoln Hall

Instructor: Matthias Aschenbrenner

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Course web page: http://www.math.uic.edu/∼maschenb
(follow the link to Math 506)

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Office hours: Monday, Wednesday and Friday, 10–11am, or by appointment

Description: An introduction to model theory, emphasizing both general theory and applications to algebra. Specific topics to be covered include:

- Review of basic notions (like languages, structures etc.), and the Compactness Theorem
- Quantifier elimination and the model theory of the real and complex fields (and more algebraic examples, perhaps)
- Saturated and homogeneous models
- Omitting types and prime models
- Indiscernibles, perhaps leading to a proof of Morley's Theorem (if time permits)

Course text: I will mostly (but not exclusively) follow *Model Theory: An Introduction* by David Marker, Springer-Verlag, 2000.

Other texts on model theory that you might want to consult:

1. *A Course in Model Theory: An Introduction to Contemporary Mathematical Logic* by Bruno Poizat, Springer-Verlag, 2000.
2. *A Shorter Model Theory* by Wilfrid Hodges, Cambridge University Press, 1997. An expanded version of this book is available under the title *Model Theory.*
3. *Introduction to Model Theory* by Philipp Rothmaler, Gordon and Breach Science Publishers, 2000.
4. *Model Theory* by C. C. Chang and H. J. Keisler, North-Holland, 1998.

A good general reference for mathematical logic is *Mathematical Logic* by Joseph R. Shoenfield, A K Peters, Ltd., 2000.

More suggested readings can be found on the web page.

Homework: There will be a problem set due every two weeks or so, to be handed in at the beginning of class. Up to three 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.