

Introduction to Logic

MATH 77100

Fall 2012

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The first part of Logic I covers topics from model-theory. We will follow P. Rothmaler's book *Introduction to Model Theory*, Gordon and Breach Science Publishers, Algebra, Logic and Application Series **15** (2000). Some of the examples will be taken from algebra and topology, so some knowledge of these topics might be useful, although it is not required.

I will assign each week homework from the topic covered and we will discuss questions and solutions the following week. There will be two written assignments (worth 25% each) and one take-home final (worth 50%) based on which I will give you a final grade in this course. All this material will be posted on my website. Tentatively, we will cover the following topics:

- Chapter 1. Structures
- Chapter 2. Languages
- Chapter 3. Semantics
 - Assignment #1: A geometric approach to definable sets
- Chapter 4. The finiteness theorem
- Chapter 5. First consequences of finiteness theorem
- Chapter 6. Malcev's applications to group theory
- Chapter 8. Elementary maps
 - Assignment #2
- Chapter 9. Elimination
- Applications: field theory
 - Take-home final