

Math 385 Introduction to Logic, Spring 2007

The overall plan will be to discuss the material in the first ten chapters and chapter 14 of the textbook. However, digressions and variations will be introduced along the way according to the needs of the class.

The material should split up naturally into three parts:

1. Introduction to formal languages following the sentential calculus in chapters 1-4.
2. The powerful abstract model of mathematical reasoning represented by the predicate calculus (chapters 5-8).
3. The completeness theorem and the compactness theorem laying the foundations of model theory. Further developments. (Chapters 9-)

Homework will be assigned roughly once a week. Although they will be mentioned in class, it is the student's responsibility to periodically check the webpage

<http://www.math.purdue.edu/~kimm/courses/logic.html>

for the latest homework and due dates.

The study of mathematical logic has at least three related aspects:

- (1) A philosophical aspect dealing with reflections on truth and meaning;
- (2) An algebraic aspect, whereby logical systems are analogous to other abstract algebraic structures of mathematics;
- (3) A computational aspect that models the formal structure of natural language and argumentation with applications to mechanical deduction processes in mind.

We will concentrate on aspects (2) and (3) for the most part.

Important dates:

Mid-term examinations: February 19, April 9

Final examination: TBA