MODEL THEORY
MATH 762

Fall 2011
TTh 12:30p.m.–1:45 p.m. in LeConte 303B
Office Hours: 2:00pm to 3:30 pm Monday through Thursday
Instructor: George F. McNulty

Recommended Text: *Introduction to Model Theory*
By Philipp Rothmaler

1. WHAT WE WILL COVER

After a couple of weeks to introduce the fundamental concepts and set the context (material chosen from the first three chapters of the text), the course will proceed with the development of first-order model theory. In the text this is the material covered beginning in Chapter 4. Our aim is cover most of the material in the text (although not all the examples) as well as some material that extends beyond the topics covered in the text (notably a proof of Morley's Categoricity Theorem).

2. THE WORK

Once the introductory phase of the course is completed, there will be a series of problem sets to entertain and challenge each student. Mastering the problem sets should give each student a detailed familiarity with the main concepts and theorems of model theory and how these concepts and theorems might be applied. So working through the problems sets is really the heart of the course. Most of the problems require some reflection and can usually not be resolved in just one sitting.

3. GRADES

The grades in this course will be based on each student's work on the problem sets. Roughly speaking, an A will be assigned to students whose problems sets eventually reveal a mastery of the central concepts and theorems of model theory; a B will be assigned to students whose work reveals a grasp of the basic concepts and a reasonable competence, short of mastery, in putting this grasp into play to solve problems. Students are invited to collaborate on the problem sets. Some of the problems will be designated as individual efforts. Students intending to use this course as part of the Comprehensive Exams should make particularly diligent efforts on the problems sets.

4. THE FINAL

As the material is ill-suited to a sit down three hour writing effort, in place of a final examination we will instead have a party at my house. Everyone (and their partners) is invited. The party does have a little exit exam. . . .

I plan to offer a MATH 748V in the spring 2012 semester. The topic of that course will be *Varieties of Aglebras*, which is an algebraic counterpart to a portion of MATH 762.. MATH 762 and MATH 748V would form a course sequence upon which a Ph.D. Comprehensive Exam could be based.

Please feel free to drop by my office at any time. My offcie is 302 LeConte.