

Set Theory Course (F01): Description

The course will cover the basics of set theory. The required text is Robert Vaught's 'Set Theory: An Introduction' (available from NYU bookstore). We will more or less go through the chapters of this book in order, though I hope to have time to cover some more advanced material. The chapters we shall cover are as follows:

1. Sets and Relations and Operations on Them;
2. Cardinal Numbers and Finite sets;
3. The Number System;
4. More on Cardinal Numbers;
5. Orders and Order Types;
6. Axiomatic Set Theory;
7. Well-orderings, Cardinals and Ordinals;
8. The Axiom of Regularity;
9. Logic and Formalized Theories;
10. Independence Proofs;
11. More on Cardinals and Ordinals.

The emphasis will be on the technical material, although there will be some philosophical discussion (my graduate seminar with Hartry Field will provide a more philosophical treatment of the semantic and set-theoretic paradoxes). Students will be required to do exercises each week. Roughly half of these assignments will be handed in and graded. Each week there will be a review section run by the TA, Joshua Schechter (time to be arranged). There will be a mid-term exam and a final exam. The two exams will count for 20% and 30% of the final grade, respectively, the assignment for 50%.

The course will start from scratch; no background in mathematics or logic is strictly required. However, a background in logic will be helpful; and a certain degree of technical sophistication will be essential. A related book that students might want to look at is 'Notes on Set Theory' by Yiannis Moschovakis (Springer-Verlag Undergraduate Texts in Mathematics, 1991), though no reference to it will be made in the course itself.

My office hours will be on Mondays, 11.30 - 12.30 (one hour before class).