Foundations of Mathematics

PHIL 3300, MATH 3840, Spring 2015
Hollister 320, T/R 10:10–11:25
Ted Sider, office hrs T 11:45–12:45 & by appt
TA: Eric Epstein (ege3), office hours M 2–4

We'll work through Enderton's book on Zermelo-Frankel set theory, including the axiomatic approach, construction of the natural and real numbers within set theory, cardinal arithmetic, ordinal arithmetic, transfinite induction and recursion. Though I will occasionally draw connections to philosophical issues, this is not a course in the philosophy of mathematics, or even in the foundations of mathematics generally (despite the title). It is really an introduction to set theory, the mathematical theory that is most important to the foundations of mathematics.

Prerequisite

There is no particular prerequisite, but the course is pretty demanding mathematically, and probably would not be suitable for students with no experience with abstract mathematics (of the sort involved in advanced logic classes or mathematics classes like linear algebra or group theory). It is also probably not suitable for graduate students in logic or mathematics since it really is just an introduction (and I am no expert).

Textbook

Herbert Enderton, *Elements of Set Theory*, available at the Campus Store.

Requirements

Two exams (70%), plus periodic homework assignments (30%). Homework assignments will be announced in class and posted on the course web site:

`http://tedsider.org/teaching/st/st.html`

You must do your homework completely on your own; no working in groups. If you get stuck on a problem, you can ask me for a hint. You can email them to me or turn them in on paper. Late homework will be penalized.