

Math 250b: Higher Algebra

Handout #0 (4 February 2002): About Math 250b

What? As per the course catalog, our main project will be the study of Lie groups and algebras and their finite-dimensional representations. Along the way we'll be naturally led to explore other algebraic structures and ideas. To begin with we'll extend our review of representations of finite groups (which we began in the waning days of 250a).

Who? Students who have taken 250a or the equivalent have all the prerequisites necessary for 250b. Some might find (as is true for the Spring terms of the other full-year graduate courses) that the second term requires more than the first in the way of "mathematical maturity", and less in homework time. As usual for 200-level courses, I must sign the study card of any undergraduate taking this class for credit.

Texts One nice thing about the 250b material, as opposed to what we did in 250a, is that there is a large selection of good texts, with a variety of styles and emphases. We'll follow *Representation Theory: A First Course* (New York: Springer, 1991 [GTM 129]), by William Fulton and Joe Harris (yes, our Joe Harris). Copies should be available for purchase at the Coop.

Grading If you are taking 250b and are not an EXCused graduate student, you will get a grade for the class. This will probably be based on a final paper, which will account for more of the grade (probably most of it) than was the case in 250a. The exact mechanism will be settled once we know which and how many students will need grades for the class. At any rate, there will naturally be no final examination.

Office information, etc. My office is Room 335 of the Science Center (right outside the math library on the 3rd floor), telephone #(617-49)5-4625; my e-mail address is [elkies@math](mailto:elkies@math.harvard.edu). Course URL: www.math.harvard.edu/~elkies/M250.01 (same as for Math 250a); I'll post most handouts and other class materials on that page. Office hours, section time, etc. will be determined once the class roster has stabilized and we know what everybody's schedule is.