

Math 200a Fall 2012: Graduate Algebra I.

MWF 12-12:50pm, 5402 AP&M

Professor D. Rogalski

1. CONTACT INFORMATION

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2. BASIC COURSE INFORMATION

- **Course description** This is a first course in graduate level algebra. At least one course at the undergraduate level in abstract algebra covering some group and ring theory, as well as a good knowledge of linear algebra, are prerequisites. Students with little or no prior background in algebra, even if they are graduate students, should consider taking our rigorous undergraduate algebra course Math 100 instead. Please come see me if you have any questions if this is the right course for you.

- **Office hours** Please take advantage of our office hours to ask questions about the course material or about the homework problems. If you cannot make the scheduled office hour times, you may contact either of us to make an appointment to talk at a different time.

- **Qualifying exam** The three quarter sequence 200a-c is preparation for the qualifying exam in algebra which will be given in May 2013, and again in September 2013. These exams will be tailored to the topics we cover in the course this year. The plan is for this year's syllabus to be roughly similar to the syllabus for last year, which you can see by looking at the archived webpages on my website. Copies of old qual exams can be found on the department's website as part of the mathematics department graduate student handbook.

- **Textbook** The main textbook is *Abstract Algebra* by Dummit and Foote, 3rd edition. Most of what is covered in 200a-b will be found in there. Generally, I think you will find it helpful both to read the book thoroughly and to attend lectures. I will follow the general order of topics as the book for the most part and try to stick to its notation, but will not follow its presentation closely.

Other good textbooks you could consult for reference include *Algebra* by Hungerford and *Algebra* by Isaacs.

- **Homework** Homework will be assigned weekly and due on Fridays. The assigned problems will be posted on the class website. Only selected problems will be graded, but you are responsible for completing and understanding all problems. You are free to discuss the homework problems in general with the professor, the TA, or each other, but your final write-up of the problems must be your work alone. If you actually submit solutions that are not your own work, for example directly copying from an online solution bank, you will not get credit and I will have to report you for academic dishonesty.

- **Exams** There will be one in-class midterm, scheduled for Wednesday October 31, 2012 (week 5). The final exam will be Thursday, December 13, 2012 from 11:30am-2:30pm. Note that there is no midterm before the undergraduate deadline to drop without a W (which is the end of week 4).

- **Grading** Your grade will be based roughly on the following percentages: Homework 25%, Midterm 25%, Final Exam 50%. Letter grades for graduate students are really just advisory. Your grade in this class is meant to suggest how your current performance corresponds to your likely result on the qualifying exam to be held next year: A = PhD Pass, A- = Provisional PhD Pass, B+/B = Master's Pass, C or less = not likely to pass the qual. Note that a C is a non-passing grade for a graduate student, and so grades less than C are uncommon in graduate courses. Since a C is a passing grade for an undergraduate, an undergraduate whose work is failing may receive an F.

- **Topics** The topics for the fall quarter will be group and ring theory, Chapters 1-9 in the text, though we will not cover absolutely everything in those chapters and we may cover a few other topics. We will cover the most basic material about groups and rings very quickly, as a kind of review, especially in the case of groups. In particular, I will assume you learned the majority of the topics in Chapters 1-3 in a prior course and we will just give a whirlwind review of them.