Math 200b Winter 2020: Graduate Algebra II.

MWF 12-12:50pm, 5402 AP&M
Professor D. Rogalski

1. Contact Information

Prof. Rogalski's Office: 5131 AP&M

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2. Basic Course Information

• **Course description** This is the second quarter in a three quarter sequence in graduate level abstract algebra. Math 200a (or equivalent experience with graduate level group and ring theory) is a prerequisite. The main aim of the course is to give PhD and masters students in mathematics sufficient background for their further studies. Students with minimal prior background should consider taking the undergraduate algebra sequence Math 100a-c instead. If you are not sure if you should take this course, please discuss it with me.

• **Office hours** Please take advantage of office hours to ask questions about the course material or if you need advice on how to approach the homework problems. If you cannot make either Professor Rogalski's or your TA's scheduled office hours, please make an appointment to talk to one of us 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 2020, and again in September 2020. These exams will be tailored to the topics we cover in the course this year.

Copies of some recent qualifying exams in algebra can be found on the math department's website as part of the mathematics department graduate student handbook, see

https://www.math.ucsd.edu/ handbook/graduate/academics/qualifying-exams/

• **Textbook** The main textbook is *Abstract Algebra* by Dummit and Foote, 3rd edition. Most of what is covered in 200b will be found in there in Chapters 10-14. I will not always follow the presentation in

Dummit and Foote closely and may order some topics differently. 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 first homework will be due on Friday january 17 (end of week 2). The assigned problems will be posted on the class website. Only selected problems may be scored, but you are responsible for completing and understanding all problems, and exam problems are often modeled on homework problems. You are free to discuss the homework problems with the professor, the TA, or each other, but your final write-up of the problems must be your work alone. Submitting solutions that are not your own work, for example copying from an online solution bank, is academically dishonest.

- **Exams** There will be one in-class midterm Wednesday February 12. The final exam will be Wednesday, March 18, 2020 from 11:30am-2:30pm. No notes, books, or other aids can be used during exams.

- **Grading** Your grade will be based on the following percentages: Homework 25%, Midterm 25%, Final Exam 50%. Your grade in this class is meant to suggest how your current performance corresponds to your likely result on the qualifying exam: A = PhD Pass, A- = Provisional PhD Pass, B+/B = Master's Pass, C or less = not likely to pass the qual.

- **Topics** The main topics are Module theory (Chapters 10-12 in Dummit and Foote) and Field Theory (Chapters 13-14 in Dummit and Foote).