Math 120A: Group Theory

Winter 2016 Course Information and Syllabus

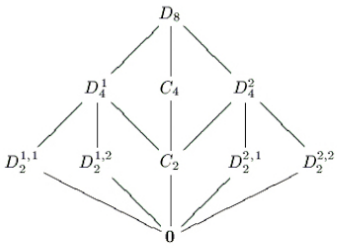
Professor: Nathan Kaplan, Rowland Hall 540C, `nckaplan@math.uci.edu`
TA: Timmy Ma, Rowland Hall 480A, `timmym@math.uci.edu`

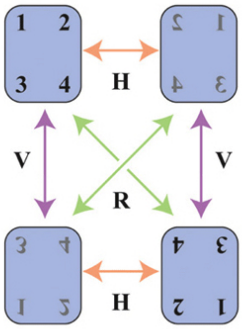
Lectures: M,W,F 2:00 - 2:50 in MSTB 118.
Office Hours: Monday 12:15 - 1:45 PM, RH 540c.
If this time does not work for you, please feel free to email me to set up an appointment.

In addition to the lectures this course has required weekly sections.
Section 1: M,W 8:00 - 8:50 in SSL 155.
Section 2: M,W 3:00 - 3:50 in SH 174.

Textbook: *A First Course in Abstract Algebra, Seventh Edition*, John B. Fraleigh.
ISBN: 9780201763904

This textbook is very expensive when purchased from the UCI bookstore. Earlier editions will be adequate for the course and should be significantly less expensive.





Course Goals

Math 120a is a rigorous proof-based introduction to group theory. It is likely that this is your first math course taught at this level of abstraction. This class will develop your ability to think axiomatically, but at the same time it will be grounded in concrete problems and examples. Becoming comfortable with this type of abstract reasoning will be a valuable experience as you progress in your mathematical studies.

Groups are fundamental mathematical objects and we will learn as much as we can about them. They provide a useful language for understanding a diverse array of problems that arise in many different areas of math. This course provides a solid base of knowledge for when these topics come up again in other courses. Most importantly, you will develop important mathematical reasoning and problem-solving skills by reading and writing lots of proofs.

We will cover Chapters 1-3 of the textbook in detail, and if we have additional time we will go over some extra topics as well. We will not assume any prior familiarity with abstract algebra, but we will assume that you have taken a course in linear algebra and that you have taken a proof-based math course before. It would be helpful for you to read over Chapter 0 of the textbook by the end of the first week of class.

Grading

- Final Exam (Friday, March 18th 1:30-3:30): 50%
- Exam 1 (in lecture Wednesday, February 24): 15%
- Quizzes (in section, approximately 5-7 total): 15%
- Weekly Homework: 20%

Homework: Homework and the weekly sections will be a big part of this course. The best way to become comfortable with a new and challenging subject is to do lots of problems. Since this is an abstract course there are lots of new definitions and concepts to absorb. We will get lots of practice working with them through weekly homework and occasional quizzes in section.

Collaboration: I have always found that I think better about mathematics when I can discuss it with others and that I only really understand a problem when I can explain its solution to somebody else. You are encouraged to work together on problem sets, but **write up your solutions individually**. If you use outside sources (other textbooks, websites, etc.) for your homework, you **must acknowledge them**. If you have any questions about this policy, or about academic integrity issues within the course, please feel free to email me.

Late Homework: As a policy, I do not accept late homework. However, if you have a good reason why you need a few extra days to complete an assignment email me and we can discuss the situation.

Makeup Quizzes: No makeup quizzes will be offered. If you know ahead of time that you will not be able to attend one of the quizzes, email me **before the quiz** to make other arrangements.

The lowest homework score and the lowest quiz score will be dropped from your grade.

Accommodation Policies: If you need an accommodation to participate in this course, please come see me no later than the end of the second week of class. Review the policies on accommodation at: `http://disability.uci.edu/`