Syllabus for MATH 103
Introduction to Group Theory
Fall 2013
MWF 10-10:50a, Girvetz Hall 2129

Instructor: Sam Ballas

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Office Hours:	Mon 12-1:30pm
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Prerequisites: You must have passed Math 8 (or equivalent) with a grade of C or better. Concepts and techniques from Math 8 are essential to Math 103, and will be used continually. You are expected to understand and be comfortable working with logic, sets, functions, and mathematical induction in particular.

Text: *Contemporary Abstract Algebra*, Joseph A. Gallian, 8th Edition, **IMPORTANT:** Be sure you get the 8th edition. A majority of the homework problems will come from this text and I will suggest the reading of certain sections of the book. It is therefore very important that you have access to a copy of the text.

Material to be Covered: In this course we will focus on basic aspects of group theory. We will begin with definitions and examples of groups and then proceed to a more detailed study of certain types of group (finite groups, permutation groups, cyclic groups, and abelian groups). Additionally, we will discuss the concepts of subgroups, quotient groups, cosets, isomorphisms, and homomorphisms. This will correspond to material covered in Chapters 1-7, 9-10, and if time allows possibly some material from Chapters 8, 11, 26, 30, or 31.

Grading: The grade distribution for this course is as follows:

Homework & Participation	30%
Exam 1	20%
Exam 2	20%
Final Exam	30%

Exams: There will be two exams and a final. These exams will be taken during class. The second exam may contain material covered on the first exam and the final will be cumulative. The exam schedule is as follows:

- Exam 1: Friday October 18.

- Exam 2: Friday November 15.

- Final: Monday December 9, 8-11a.

I place value on improving your performance and grasp of the material throughout the course of the quarter. For this reason your score on the cumulative final exam may be used to replace one of your midterm exam scores. This will be done automatically, if applicable. Please note that the final can only replace one of your midterms and that a midterm score cannot be used to replace the final. Additionally, all students must take the final exam.

Homework and Participation: Homework and participation constitute a significant portion of your grade in this course. The reason for this is that I firmly believe that the best way to learn mathematics is by working through examples and exercises and by discussing mathematics with others. With this in mind I will be assigning and collecting homework regularly (See Homework Submission for more details). Additionally, on certain days students will be presenting their solutions to selected homework problems to the class. Each student will be required to make multiple presentations throughout the quarter in order to receive a high participation grade. We will talk more on the first day of class about the logistics of the homework/presentation process.

Homework Submission: Homework will be submitted in class on the day that it is due. Late homework *will not* be accepted. One of the most important aspects of your written homework is clarity of expression. This encompasses not only the mathematical ideas of your proofs, but also of the layout on the actual page. If your homework solutions require more than a single sheet of paper (which they often will) you will be required to staple all pages together. Homework that is not stapled *will not* be accepted and you should not count on a stapler being available in class.

Expectations: I expect that everyone will maintain a classroom conducive to learning. I like an informal atmosphere, but it must be orderly. Thus, everyone is expected to behave with basic politeness, civility, and respect for others. In particular, talking in class is OK if it's

part of a class discussion or with me. Private communications are not permitted, especially during quizzes and tests. I also expect that when you are in class that the mathematics at hand will receive your undivided attention. Indicators that your attention is divided include, but are not limited to:

- Texting,

- Using social media (Facebook/Twitter/etc.), or

- Playing games on your cell phone.

and such actions will result in a penalty to your participation grade.

Working Together: It is OK to work together on homework. However, when it comes time for you to write up the solutions, I expect you to do this on your own, and it would be best for your own understanding if you put aside your notes from the discussions with your classmates and wrote up the solutions entirely from scratch. Working together on exams, of course, is expressly forbidden.

Attendance: While there is not an explicit attendance policy for this course, you are expected to attend each class. If you miss several classes it is likely that you will not take part in enough in-class presentations and the result will be that your participation grade will suffer. Additionally, homework must be submitted *in class* on the day it is due. Late homework *will not* be accepted and if you know that you will miss class on a day that homework is due you should make arrangements for a classmate to submit your homework on your behalf.

Academic Dishonesty: Cheating and other forms of academic dishonesty will not be tolerated in this course. A summary of the university's policies on academic misconduct can be found here http://judicialaffairs.sa.ucsb.edu/CMSMedia/Documents/academicintegflyer. pdf. To summarize, violations of these policies will result in a rather messy affair for you and me, so just don't do it.