

Class Syllabus
MTH 623, Group Theory
Section 32969, PE 223, 5-6:15 PM, MW
Dr. Ken W. Smith
Spring 2007

Group theory

The theory of groups began as a study of symmetries and permutations. It is now a fundamental concept in mathematics, with an underlying theory which plays a role in almost every area of mathematics and many areas of physics and chemistry.

Anywhere one sees symmetries, there is a group.

Here are details about the mechanics of this course.

Textbook: Textbook: Joseph T. Rotman, *An Introduction to the Theory of Groups*, Fourth Edition, Springer-Verlag, 1995. (ISBN 0-387-94285-8)

GAP: We will use *GAP* software for computations in group theory. This software is freely available for download and easy to install on most computers. (There are several Macs in the Mac lab that also have GAP installed.) I recommend that you go to the [GAP webpage](#) and follow the instructions there to install GAP on your computer.

There is an [abstract algebra GAP manual](#) by Rainbolt and Gallian available online.

Prerequisites: MTH 523 (Modern Algebra).

Contact information

My e-mail address is Ken.W.Smith@cmich.edu. Please feel free to contact me by email. My office is PE 221; phone: 774-6521.

Office Hours

My formal office hours are **immediately after class and 1-2 PM on Friday**. Feel free to make an appointment for other times.

I intend to begin office hours in our regular classroom (PE 223), immediately after each class, by going over exercises and assignment problems. Feel free to stay or leave, depending on your group theory “comfort zone.”

I will provide course material on my webpage at <http://www.cst.cmich.edu/users/smith1kw/>. (Follow the link to *Group Theor Notesy*.)

Class expectations

Please treat this class as you would other *professional* obligations. If you are unable to attend class, I expect you to contact me as soon as possible (by email or phone) and let me know you will absent. (Email contact is easiest for me.)

Assignments and Exams

There will be **daily reading assignments**, along with **daily exercises** to work.

There is a **weekly assignment**, which *is* collected. On the weekly assignment, the clarity and presentation of your work is *very* important. Each assignment problem should be done on a separate sheet, with work clearly shown and English sentences explaining the process. (Assume the audience for your writing is a colleague in the class who does not understand the recent material.) Your writing should communicate the techniques involved in the problem.

You may submit assignments electronically if you wish.

Weekly assignments are designed to develop understanding. They may require a fair amount of thinking and “meditating” on the subject. Please set aside enough time to do these assignments well! (I will *not* answer questions on the assignments on the day they are due.)

There are two exams. They are on the **Wednesday, March 14**, 5-7 PM, and **Monday, April 30**, 5-8 PM.

I will occasionally give short quizzes.

Grades

Your grade is just an accumulation of points, primarily assignments and exams. All points are equal. Grades are then based on percentages -- roughly 85 percent and up is an A or A-; 75% and up is a B+/B/B-; 60% and up is C+/C/C-. A grade below 60% is failing (E). There are no *D* grades.

Collaboration, Plagiarism, Working with Others

On assignments, homework, or “take home” quizzes, it is acceptable to receive tutoring from your instructor (me.) You are also *encouraged* to discuss the problems with other students. However, anything you turn in must be in *your* own words, with *your* understanding of the material. To turn in material that is written in someone else’s words is plagiarism.

In the academic and scientific community, unless explicitly stated otherwise, it is often assumed that submitted work involves two types of ideas: (1) concepts well known to everyone in the field and (2) the ideas of the author. Ideas of other people, if used, must be referenced. (A typical reference might be “The idea of ... in the third paragraph was suggested by <name>” or “The author thanks <name> for suggesting”)

In this course we will assume that material covered in class is “well-known” and does not need to be referenced. You may also assume that suggestions from me (say, in my office hours) is also common knowledge. But significant assignment help from other faculty or students (or internet webpages) must be referenced. Using someone else’s ideas, without referencing them, is also considered plagiarism.

=> I expect you to provide references on each problem which involved significant ideas from others.

Please note that plagiarism need not involve deliberate deceit. (Deliberate deceit - "cheating" -- is dealt with severely, in the classroom and in the professional organizations.) Even if it does not involve deliberate deceit, plagiarism is treated as a significant error. Plagiarism, in professional circles, may lead to penalties as minor as a public printed apology all the way up to major penalties such as job termination and expulsion from a professional society. In this class plagiarism *could* lead to an *E* in the course and a referral to the Math Department Graduate Committee.

Writing

Mathematicians should write well. Please don't abbreviate (unless we have agreed on some common abbreviations). Please write with good grammar, in complete sentences. Spell correctly. Write so that others will find your work easy to read.

I will try to help you improve your math writing.

Final comment

Please feel free to talk to me about the course. I want you to enjoy this class *and* to do well!

Dr. Ken W. Smith (ken.w.smith@cmich.edu)