

INTRODUCTION TO GROUP THEORY

1. **Course:** M120A, Fall 2003

Lecture: M-W-F 10:00 – 10:50 in PSCB 240

Discussion: Tue-Thr 11:00 – 11:50 in MSTB 114 TA: Lewis, J.

2. **Instructor:** Martin Zeman

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Office Hours: M: 1:30pm – 3:00pm, W: 12:00pm – 1:30pm

3. **Textbook:** *A First Course in Abstract Algebra (7th Edition)* by John B. Fraleigh

4. **Goals and the Material Covered.** The goal of the course is to:

- Gain the knowledge of the basic notions and methods of group theory and abstract algebra in general.
- Improve the understanding of mathematical proofs and to practise proving mathematical theorems.

The course will cover Chapters I, II and III from the book and possibly more, if the time permits. I stress that these three chapters comprise **basically just the terminology**, and the real group theory begins in Chapter VII. Thus, in fact, we won't reach even the beginning of the real group theory if we only work through over the first three chapters. However, the first contact with the notions from abstract algebra will naturally be difficult, so it is important to go over these topics thoroughly and **learn how to work with abstract notions**. If the time permits, we will also discuss topics from Chapter VII, in particular Sylow Theorems (Section 36). Interested students are recommended to become familiar with Sylow theorems even if there won't be time to go over the topic; I will be happy to help here.

5. **Lecture and Discussions.** The class will meet five times in a week; M-W-F is reserved for the lecture and Tue-Th for discussions. **Attendance on all days is expected.** In the event you must miss a lecture, you will be responsible for all class work that was missed. Discussions will be devoted to homework and quizzes.

6. **Homework.** There will be regular homework assignments. It is **very important** to work through the assigned problems. **As it was stressed above, one of the goals is to continue developing the ability of proving theorems. This is impossible without doing the problems.** The assignments will be posted on **my web page** (see above) after each lecture.

7. **Quizzes.** The problems/questions given on quizzes **will be chosen from homework assignments.** Thus, working carefully through the homework assignments **will help you to do well on quizzes.**

8. **Examinations.** There will be one midterm exam, 8 quizzes (about one per week) and a final exam.

- **Midterm:** Monday, November 3
- **Final:** As in the Schedule of Classes: Monday, December 8, 10:30 a.m. – 12:30 p.m.

9. **Grading.** Grading will be based on the **relative score**, which is the ratio

the number of obtained points/maximal number of points

The score S for determining the final grade is given by the formula:

$$S = 0.4F + 0.3M + 0.3Q$$

where F , M and Q is the score of the final exam, the score of the midterm exam and the mean value of the quizzes scores, respectively. (That is, the final exam will count by 40%, midterm exam by 30% and quizzes by 30%.)

Final Grade. The final grade will be calculated as follows:

- A: more than the mean plus standard deviation
- D: less than the mean minus standard deviation
- The remaining interval will be divided into equally large parts to provide the remaining grades.

10. **Rules for the exams.**

- **You should arrange your schedule now to take the exams at the assigned times. A make-up exam will be given only in the case of a fully documented serious illness or personal emergency and generally, by its very nature, will be more difficult than the regular exam.**
- **Cheating during exams will not be tolerated whatsoever and the guilty party will receive an F in the class and a letter put in his/her personal file.**
- **Calculators will not be allowed at the exams and quizzes.**
- **Cellular phones will be supposed to be turned off and kept out of reach during the exams and quizzes.**

11. **Incompletes.** The grade of Incomplete is given only when “the student’s work is of passing quality, but is incomplete because of circumstances beyond the student’s control” (quote from Academic Regulations.) Therefore it is **essential to keep up with the course work**. Any problems that develop should be discussed **immediately** with the instructor.

12. **Feedback** Questions and comments are strongly encouraged during lectures as well as at other times. You are encouraged to make use of e-mail as well as office hours. A student who interacts more during lecture is likely to have a more fulfilling experience in the class.

13. **Good study habits.**

- A. Work on homework as it is assigned during lecture (do not delay).
- B. Read the previous lecture notes before attending the next class.
- C. Keep a list of all definitions, and a list of relevant theorems.