

Math 3E03 Abstract Algebra Information Sheet
Term 1 Autumn 2004–2005

Instructor:

Dr. D. Haskell, HH 316 ext 27244, haskell@math.mcmaster.ca
office hours: Monday 13:00–14:00, Wednesday, Friday 11:00–12:00

Website: http://www.math.mcmaster.ca/~haskell/math3e_04-05/math3e.html

Text: *Contemporary Abstract Algebra, 5th edition* by J. A. Gallian, Houghton Mifflin.

Course objective: To learn the fundamental ideas of group theory, with a sense of some of its modern applications. Also, to learn to understand and create mathematical proofs, including an appreciation of why this is important.

Course outline: Groups: definition, examples, elementary properties. Subgroups. Cyclic groups, permutation groups. Isomorphisms. Normal subgroups, factor groups, products of groups. Homomorphisms. Structure theory of finite abelian groups. Sylow theorems. We will cover most of chapters 1 through 11, and chapter 24 of the text. See the website for a more detailed outline.

Lectures and Tutorials: There will be three lectures per week.

Assessment: Your grade will be based on five homework assignments, one essay, two in-class midterms and the final exam. The distribution is as follows, although the instructor reserves the right to change the weight of any portion of this marking scheme.

Homework — 15%

Essay — 5%

Midterm I — 20%

Midterm II — 20%

Final — 40%

The tentative dates for tests and exams are:

Midterm I: Friday, 15 October, in class

Midterm II: Friday, 19 November, in class

Homework: There will be six homework assignments, due approximately every two weeks (dates are on the website). The homework is to be handed in at the homework lockers on the first floor of Hamilton Hall, by 3 pm on the date given. Your homework grade will be the five best that you hand in. The homework will stress problems involving proofs, so that you can learn this aspect of the course, and have some feedback on how you are doing on it. In addition, there will be more conceptual and example problems, which we will discuss every week in class. You do not have to write anything down for these problems, but I expect you to be

prepared to answer questions on them in class. I cannot stress too strongly that to learn mathematics you must DO it.

Essay: The textbook has extensive references to further readings on the concepts of groups, and applications both serious and recreational. For the essay, you should read one of these (or some other source that you find yourself), and summarise the contents in a three to five page paper.

Exams: The exams will involve both theory and examples. You will be required to state definitions, prove theorems that you have seen before, and solve problems similar to the homework, that may involve proofs. The midterms will be held during class time.

All work submitted must be YOUR OWN. At the same time, you are encouraged to discuss problems and general ideas with each other. Mathematics need not be an isolating activity. What you may not do is to copy someone else's work.

Important reminders:

Late assignments will not be marked. Solutions will be posted as soon as the due time has passed.

Only excuses validated by the Dean's office will be accepted for missing any examinations.

You must bring your student ID to the midterms and the final exam.

Only the McMaster standard calculator Casio fx-991 will be allowed in the midterms and final exam.

Final Policy Notes:

(i) It seems unfortunate but necessary to reproduce the words of the dean on cheating:

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at

<http://www.mcmaster.ca/senate/academic/ac-integrity.htm>

The following illustrates only three forms of academic dishonesty:

Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.

Improper collaboration in group work.

Copying or using unauthorized aids tests and examinations.

(ii) The instructor reserves the right to change or revise information contained in this course outline.