Mathematics 322, Section 101
Introduction to group theory
September-December 2016
Course Syllabus

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Main Textbook : Joseph Rotman, *Introduction to the Theory of Groups,* <u>free electronic copy available</u> through UBC library. You can download a copy by following the link while on the UBC network.

Supplementary Texts : The material we will be covering is standard; any book with "group theory" or "abstract algebra" in the title is likely to cover it. In particular, for those students who are interested in looking at other books, in addition to Rotman's, the following optional supplementary texts were used in this course in previous years and contain most of the relevant material.

- Dummit and Foote, Abstract Algebra
- Gallian, Contemporary Abstract Algebra

Course description : Math 322-23 is UBC's undergraduate honours abstract algebra sequence. Math 322 is devoted entirely to group theory, with an emphasis on finite groups. The topics I plan to cover are as follows.

- Preliminaries on the principle of mathematical induction, integers, and equivalence relations.
- Definition and first properties of a group,
- Cyclic and permutation groups.
- Subgroups, cosets, and Lagrange's Theorem.
- Homomorphisms, normal subgroups, quotients, and simple groups.
- Group actions, p-groups and Sylow theorems.
- Finite abelian groups.

Homework and exams : Homework assignments will be posted on the course website and collected in class, usually on a biweekly schedule. Late homework will not be accepted. The solutions you turn in should be your own, written in your own words. There will be two midterms and a final exam.

Evaluation : I will compute the total term mark in two ways,

Total 1 := Homework (20%) + Midterm 1 (20%) + Midterm 2 (20%) + Final exam (40%), and

Total 2 := Homework (20%) + Best midterm (20%) + Final exam (60%),

and use the higher of these two numbers.