Group Theory

Course: MATH 4321 (Undergraduate), MATH 6320 (Graduate)

Semester: Winter 2025

Instructor: Yorck Sommerhäuser

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Class meetings: Tuesday, Thursday 3:30 pm–4:45 pm, HH 3015

Office hours: Tuesday 5:00 pm–6:30 pm, Thursday 5:00 pm–5:30 pm and by appointment.

Textbook: H. Kurzweil/B. Stellmacher: The theory of finite groups, Universitext, Springer, Berlin, 2004 (required resource)

Course description: The course introduces the student to group theory. Among the topics covered are subgroups, Lagrange's theorem, Sylow's theorems, the fundamental theorem for finite abelian groups, symmetric groups, as well as solvable and nilpotent groups.

Coverage: The course covers selected parts of the first ten chapters of the textbook, usually from the earlier chapters.

Examinations: There will be a midterm examination and a comprehensive final examination. The midterm examination takes place on Tuesday, March 4, during regular class time in our usual classroom. The final examination takes place during the examination period from April 12 to April 22 at a time and in a room determined by the registrar's office.

Homework: Beginning Tuesday of the second week, a weekly exercise sheet will be handed out. This has to be submitted in class on the following Tuesday. There will be no exercise sheet during the week of the midterm examination and no exercise sheets during the last two weeks of the semester. In addition, a reading assignment from the textbook will be given in every lecture.

Writing assignments: To distinguish the graduate course from the undergraduate course, the graduate course will have two additional writing assignments. They should be written as an essay of about five to ten pages. The precise description of the first writing assignment will be given out on Tuesday, February 4, and the precise description of the second writing assignment will be given out on Tuesday, March 25.

Policies: Eating, drinking, and smoking is not permitted in the classroom. While attendance is not required, it will be recorded. The use of electronic devices, especially cellphones, calculators, and laptop computers, is not permitted without explicit permission of the instructor. Electronic devices have to be turned off completely. While the use of artificial intelligence is permitted, it is not allowed to copy its answers verbatim.

Memorial University accommodates students with disabilities and demands academic integrity. The corresponding university policies can be found at http://www.mun.ca/policy/site/policy.php?id=239 and in the Academic Calendar in Paragraph 6.12, respectively.

In case of natural or man-made disasters, the course may transition to remote delivery. In case of emergency, this transition might be communicated only via e-mail.

Prerequisite: MATH 3320 (Abstract Algebra) or equivalent

Marking weights:
Homework:	25 %
Midterm examination:	25 %
Final examination:	50 %