

CARLETON UNIVERSITY
SCHOOL OF MATHEMATICS AND STATISTICS

MATH 3106 Group Theory Fall 2021

Preliminary COURSE OUTLINE

Objectives of the course: this course is an advanced course in abstract algebra, with focus on the group theory.

Course Instructor: Dr. Inna Bumagin

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Textbook:

- Algebra, by Michael Artin, 2nd edition.

Recommended Textbooks:

- Abstract Algebra, by Dummit and Foote, 3rd edition, Wiley,
- Introduction to Algebra, by Kostrikin and Koblitz,
- Introduction to Abstract Algebra, by Keith W. Nicholson.

TOPICS:

- Review: Group homomorphisms, Isomorphism Theorems,
- Solvable groups,
- Group Actions on Sets,
- Sylow Theorems,
- Abelian groups,
- Free groups.

The following **classes of groups** will be considered: groups of permutations, groups of matrices, the quaternion group, dihedral groups, and p-groups.

Lectures: Monday and Wednesday 16:00 - 17:30, room SA 624. Lectures begin on September 8 (Wednesday) and end on December 8.

Tutorials: Monday 17:35 - 18:25 TB 210. Tutorials begin on September 13 and end on December 6.

Both lectures and tutorials are mandatory.

Prerequisites: MATH 2100 with a grade of C- or higher; or permission of the School.

EVALUATION. Your final grade for the course will consist of

- (1) **Term Mark 50%**
- (2) **Final Examination 50%.**

There will be **two 80-minute tests** written **in person** during class time, dates TBA. There are no make-up tests. The tests are worth 25%.

There will be **bi-weekly homework assignments**. The assignments are worth 20%.

Participation is worth 5%. Students will take turns presenting their solutions to homework assignments and to recommended exercises in tutorials.

Final Examination is a 3-hour exam written **in person**. The exam is taking place during the period of December 11-23, 2021 and is scheduled by the University.

Note: you must obtain at least 50% of total and at least 50% of the final exam mark to pass the course.

You are welcome to *collaborate with other students from class on the homework*, but you should **write your solutions independently**. Getting help from anyone who is not a participant in this class is *strongly discouraged*.

Never submit solutions that you do not understand.

Course notes, presentation videos, assignments, tests, final exam created for this course remain intellectual property of those who created them. These materials are intended for the personal and non-transferable use of the students registered in the current offering of the course. **Reposting, reproducing, or redistributing** any of these materials, in part or in whole, without the written consent of the Instructor is **strictly prohibited**.

Academic Integrity.

Students are required to be familiar with the **Academic Integrity Policy** at Carleton University. The complete policy is available at:

<https://carleton.ca/registrar/academic-integrity/>

The University states unequivocally that it demands academic integrity from all its members. Academic dishonesty, in whatever form is ultimately destructive to the values of the University. Students who violate the principles of academic integrity through dishonest practices undermine the value of the Carleton degree. Dishonesty in scholarly activity cannot be tolerated. Any student who violates the standards of academic integrity will be subject to appropriate sanctions.

Academic Accommodation

Carleton University has suspended the need for a doctor's note or medical certificate until further notice when requesting academic accommodation related to COVID-19. Students should complete the self-declaration form available on the Registrar's Office website to request academic accommodation for missed course work including exams and assignments:

<https://carleton.ca/registrar/wp-content/uploads/self-declaration.pdf>

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation: write to me with any requests for academic accommodation during the first two weeks of classes, or as soon as possible after the need for accommodation is known to exist.

Religious obligation: write to me with any requests for academic accommodation during the first two weeks of classes, or as soon as possible after the need for accommodation is known to exist.

Academic Accommodations for Students with Disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, contact me to ensure accommodation arrangements are made. Please consult the PMC website for more information:

<https://carleton.ca/pmc/>

You can find more detailed information on academic accommodation here:

<https://students.carleton.ca/course-outline/#accommodation-for-student-activities>