

PMATH 336 - Introduction to Group Theory with Applications  
Fall 2019

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Office: MC 5422

Office Hours: Wednesday 2:00-3:00  
Thursday 10:00-12:00

**Lectures:** MWF, 11:30-12:20 in QNC 1507.

**Prerequisites:** MATH 235 or MATH 245.

**Syllabus:** Groups, subgroups, dihedral groups, direct products, cyclic groups, permutation groups, cosets and Lagrange's Theorem, homomorphisms and isomorphisms, normal subgroups and quotient groups, automorphism groups, group actions, Burnside's lemma, the fundamental theorem of finite Abelian groups.

**Textbook:** The following textbooks are on course reserve at the Davis Centre library, and the first is available for purchase at the UW bookstore. It is not required that you purchase either text.

Primary reference: *Contemporary Abstract Algebra, 9th ed.*  
Joseph A. Gallian

Secondary reference: *Algebra: Pure and Applied*  
Aigli Papantonopoulou

**Course Website:** All relevant information can be found on our LEARN webpage (<https://learn.uwaterloo.ca>).

**Grading:** Grades will be computed according to the following scheme.

Assignments: 15%	Midterm Exam: 25%
Quizzes: 20%	Final Exam: 40%

**Assignments:** There will be a total of 5 bi-weekly assignments, as well as a 1% bonus assignment (Assignment 0). Assignments are due at **5:00pm** on the dates below, and will be submitted electronically via Crowdmark (<https://crowdmark.com>). Late assignments will NOT be accepted.

**Quizzes:** There will be bi-weekly quizzes, which will be written in class on Fridays.

Assignment	Due date
Assignment 0	September 9
Assignment 1	September 20
Assignment 2	October 4
Assignment 3	October 25
Assignment 4	November 15
Assignment 5	November 29

Quiz	Date
Quiz 1	September 13
Quiz 2	September 27
Quiz 3	October 11
Quiz 4	November 8
Quiz 5	November 22

**Midterm Exam:** Wednesday, October 30 from 6:30-8:00pm in PHY 145.

**Final Exam:** TBA (Scheduled by Registrar).

**Missed examination policy.** For any missed examination, you must have a valid reason (for instance, illness) and appropriate supporting documentation (i.e. University of Waterloo Verification of Illness Form). A copy of these forms must be submitted to the Mathematics Undergraduate Office (MUO) in MC 4022 as soon as possible (see <https://uwaterloo.ca/math/vif> for more information). Absence for the midterm exam will result in the weight being shifted to the final exam. An alternate sitting for the midterm exam will take place only in the case of a time conflict reported to your instructor at least one week in advance.

Absence for the final exam may result in a grade of INC at the discretion of your instructor. To be considered for an INC, you must have passing grades on the midterm exam and a strong average over all assignments and quizzes. (See <http://ugradcalendar.uwaterloo.ca/page/Regulations-Accommodations>)

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.

[Check [www.uwaterloo.ca/academicintegrity/](http://www.uwaterloo.ca/academicintegrity/) for more information.]

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

**Discipline:** A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean.

For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>. For typical penalties check Guidelines for the Assessment of Penalties, <http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm>.

**Appeals:** A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals, <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>.

**Note for students with disabilities:** AccessAbility Services, located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AccessAbility Services at the beginning of each academic term.