

CARLETON UNIVERSITY
SCHOOL OF MATHEMATICS AND STATISTICS

MATH 2100 Algebra II Fall 2019 - Winter 2020

Preliminary COURSE OUTLINE

Objectives of the course: this is a course in abstract algebra, with the focus on proofs. It includes advanced topics in Linear Algebra and an introduction to Algebraic Structures.

Course Instructor: Dr. Inna Bumagin

- **Office:** 4370 HP
- **Email:** inna.bumagin AT carleton.ca
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Lectures and Tutorials in the Fall term: Tuesday and Thursday 14:30 - 16:00 in UC 280 (beginning on Thursday September 5), and Thursdays 11:30-13:00 in UC 378 (beginning on September 12). Lectures and tutorials end on December 5 (Thursday).

Lectures and Tutorials in the Winter term: Tuesday and Thursday 14:30 - 16:00, and Thursdays 11:30-13:00; Winter term locations are TBA.

Lectures and tutorials begin on January 7 (Tuesday) and end on April 7 (Tuesday).

Both lectures and tutorials are mandatory.

Prerequisites: i) MATH 1102 with a grade of C+ or higher, or (MATH 2107 with a grade of B+ or higher and permission of the School); and ii) MATH 1800 with a grade of C+ or higher; or permission of the School.

Textbook:

- Algebra, by Michael Artin, 2nd edition.

Recommended Textbooks:

- Introduction to Algebra, by Kostrikin and Koblitz,
- Linear Algebra Done Right, by Axler,
- Introduction to Abstract Algebra, by Keith W. Nicholson.

Topics for the Fall term:

- Bilinear and Quadratic forms;
- Inner Product spaces;
- Linear operators on inner product spaces;
- Least Squares method.

Topics for the Winter term:

- Sets with algebraic operations;
- Introduction to Groups;
- Examples of groups, Cyclic groups and Groups of permutations;

- Lagrange's Theorem;
- Normal subgroups and Quotient groups;
- Introduction to Rings and Fields;
- Homomorphism theorems.

EVALUATION. Your final grade for the course will consist of

- (1) **Weekly assignments 10%**
- (2) **Tests 20%**
- (3) **Mid-year Examination 20%**
- (4) **Final Examination 50%.**

Mid-year Examination is a 2-hour exam scheduled by the University. The exam is taking place during the period of December 9-21, 2019.

Final Examination is a 3-hour exam scheduled by the University. The exam is taking place during the period of April 13-25, 2020.

There will be **two 50-minute tests** in the Fall term, and **two 50-minute tests** in the Winter term. Each test is worth 5%. There are no make-up tests.

There will be **weekly homework assignments**, some administered **on-line**, others written assignment **handed in**. After the due date for an assignment there will be a short and easy quiz related to the topic of the assignment. A zero mark for the quiz will result in a zero mark for the assignment; otherwise, marks for the quizzes do not count toward the final grade.

For fairness reasons, late homework will not be accepted, but the lowest homework grade will be dropped to compute the final grade.

You are welcome to collaborate with other students on the homework, but please indicate clearly the names of other students you collaborated with and write your solutions separately.

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

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

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

Religious obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: <http://www2.carleton.ca/equity/>

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, meet with me to ensure accommodation arrangements are made.

Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable) at

<http://www2.carleton.ca/pmc/new-and-current-students/dates-and-deadlines/>

You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at <http://www2.carleton.ca/equity/>