

MATH 2108B/3101B, Winter 2020

Abstract Algebra I / Algebraic Structures with Computer Applications

Instructor:

Dr. Ayse Alaca

Herzberg Physics Office #4376

Tel: (613) 520 2600 (Ext. 2133)

aalaca@math.carleton.ca

<http://www.math.carleton.ca/~aalaca/>

Textbook:

Elements of Modern Algebra. Gilbert/Gilbert, 8E.

Prerequisite(s): (i) MATH 1102 or MATH 2107; and (ii) either COMP 1805/MATH 1805 or MATH 1800 (MATH 1800 may be taken concurrently); or permission of the School.

First class: Monday, January 6, 2020.

Last class: Monday, April 6, 2020.

Tutorials begin: Wednesday, January 15, 2020.

Tutorials end: Wednesday, April 1, 2020.

~	Day	Time	Room
Lectures	Monday and Wednesday	10:00-11:30 am	406 SA
Tutorials	Wednesday	2:30-3:30 pm	318 SA
My Office hour	Wednesday	11:30 am--12:30 pm	4376 HP

Tutorials are an integral part of this course and students are required to have a course-conflict free timetable. During the tutorial sessions, the selected problems will be solved, questions will be answered, the tests will be administered.

TA information:

Office hour	TBA
E-mail: @cmail.carleton.ca	simonearplynch

Term Tests: There will be three 50-minute tests during the regular tutorial hours on

February 5, March 4 and March 25, 2020. No make up, early, or delayed tests. If you miss a test with a valid reason and provide me with valid documentation, the weight of the missed test will be transferred to the final exam.

Final Examination: This is a three hour exam scheduled by the University and will take place sometime during the examination period **April 13-25, 2020**. It is the responsibility of each student to be available at the time of the examination. In particular, no travel plans for the examination period in April should be made until the examination schedule is published.

Evaluation: Tests 45% (15% each) and Final examination 55%.

Notes:

- Approximately 40% of each test and the final examination will consist of multiple choice questions.
- Do not write the answers of multiple-choice questions in the margins during the tests and final examinations.
- It is your responsibility to pick up your tests in the following tutorial hours. After that TA's and I are not responsible for missing test papers.
- After each test, you are responsible to make sure that your test marks are recorded correctly by visiting **cuLearn**. The deadline to make any corrections on your term marks is **April 7, 2020** (I need to see the test/assignment papers before I make the correction).
- You are responsible for keeping up with information announced in class, on cuLearn, or sent to your Carleton e-mail account.
- According to Carleton University policy under the Freedom of Information of Privacy Act (FIPPA), please use your Carleton e-mail account for all course related e-mails.
- Plagiarism and violations of academic integrity standards will not be tolerated. All suspected cases of violations will be reported to the Faculty Dean and will be dealt by the Faculty. For more details see the Academic Integrity Policy: <https://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy.pdf>
- There is a mathematics and statistics help centre located at 3422-HP. For information visit the website <http://www5.carleton.ca/math/math-tutorial-centre/>
- Students who wish to review their final examination paper must do so within three weeks of the examination period.

Academic Accommodations

Religious obligations and/or accommodations for pregnancy: 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 see the Student Guide: <http://www2.carleton.ca/equity/accommodation/academic/students/>

Students with disabilities requiring academic accommodations in this course must register with the Paul Menton Centre for Students with Disabilities (PMC) for a formal evaluation of disability-related needs. Documented disabilities include but are not limited to mobility/physical impairments, specific Learning Disabilities (LD), psychiatric/psychological disabilities, sensory disabilities, Attention Deficit Hyperactivity Disorder (ADHD), and chronic medical conditions. Registered PMC students are required to contact the PMC every term to have a Letter of Accommodation sent to the Instructor by their Coordinator. In addition, students are expected to confirm their need for accommodation with the Instructor no later than two weeks before the first assignment is due or the first in-class test/midterm. If you require accommodations only for formally scheduled exam(s) in this course, you must request accommodations by the last official day to withdraw from classes in each term. For more details visit the PMC website <http://www2.carleton.ca/pmc/>

Tentative Lecture Schedule (Depending on class progress)

# Weeks	DATES	TESTS	SECTIONS	TOPICS
1	Jan. 6, 8	~	2.3, 2.4	Divisibility, Prime Factors, Greatest Common Divisor (gcd), Unique Factorization Theorem
2	Jan. 13, 15	~	2.5	Congruence of Integers, Chinese Remainder Theorem
3	Jan. 20, 22	~	2.6, 2.8	Congruence Classes, Introduction to Cryptography
4	Jan. 27, 29	~	3.1, 3.2	Groups, Properties of Group Elements
5	Feb. 3, 5	Feb. 5 Test 1	3.3, 3.4	Subgroups, Cyclic Groups
6	Feb. 10, 12	~	3.5, 3.6	Isomorphisms and Homomorphisms
~	Feb. 17--21	WINTER	BREAK	NO CLASSES
7	Feb. 24, 26	~	4.1, 4.2	Finite Permutation Groups, Cayley's Theorem
8	Mar. 2, 4	Mar. 4 Test 2	4.4, 4.5	Cosets of a Subgroup, Lagrange's Theorem, Normal Subgroups
9	Mar. 9, 11	~	5.1, 5.2	Rings, Integral Domains and Fields
10	Mar. 16, 18	~	6.1, 6.2	Ideals and Quotient Rings, Ring Homomorphisms
11	Mar. 23, 25	Mar. 25 Test 3	8.1, 8.2	Polynomials over a Ring, Divisibility and Greatest Common Divisor

12	Mar. 30, Apr. 1	~	8.3, 8.4	Factorization in $F[x]$, Zeros of a Polynomial
~	Apr. 6	~	8.6	Algebraic Extensions of a Field

Last Modified: January 6, 2020.