Abstract Algebra, Math2108A, Fall 2012
Algebraic Structures with Computer Applications Math3101A, Fall 2012

Instructor: Dr. Steven Wang, 4368HP
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Lectures: Monday, Wednesday, 1:05 pm - 2:25 pm, Southam Hall 406

Tutorials: Monday, 4:35 pm - 5:25 pm, Paterson Hall 201

Office hours: Monday 2:30pm-3:30pm; Thursday 2:00pm-3:00pm.
Other time is available by appointment.

Textbook: *Abstract Algebra: Theory and Applications*, by Thomas W. Judson. Available at http://abstract.ups.edu/.

Prerequisites: MATH 1102 or MATH2107, or permission of the School.

Course Objective: The purpose of this course is to introduce students several "abstract" algebraic structures: groups, rings, fields. Applications of these concepts to cryptography will also be discussed briefly.

Evaluation: Tests (45%) and Final Examination (55 %). **Important**: To pass the course you need at least 30% of term work (equivalent to 13.5% out of 45% of the total marks for tests).

Tutorials: Tutorials begin on September 17, 2012. TA's name and office hour will be announced later.

Tests: There will be four 50 minutes tests held during tutorial time. Each test contributes 15 marks. No make up, early or delayed tests will be given. Medical excuses, other than hospitalization, will not be considered. Best 3 tests out of 4 will be counted. TESTS dates: **Oct. 1, Oct. 22, Nov. 5 and Nov. 19**.

Final Examination: This is a three hour closed-book exam scheduled by the University and will take place sometime during the examination period (Dec. 8- Dec. 21). Students wishing to see their examination papers must make an appointment within three weeks of the examination. This privilege is for you to learn where you went wrong and is not an opportunity to argue about the marking!

Academic Accommodation

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 class, or as soon as possible after the need for accommodation is known to exist. For more details visit Student Guide. website: http://www2.carleton.ca/equity/ccms/wp-content/ccms-files/Student-Guide-card-09.pdf

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 Student Guide.

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).

Note: There are TA opportunities within the School for future terms. Information on how to apply can be found on our School web page. In hiring undergraduate TAs, the priority shall first be given to students who have passed some of the following Honours courses: MATH 1002, 1102, 2000, 2100, STAT 2655, 2559 with grades A- or better.

Math2108/Math3101
Tentative lecture schedule –subject to change

Week	Dates	Sections	Topics
1	Sep. 10-14	1.2;	sets, mappings, equivalence relations
2	Sep. 17-21	2.1-2.2	division algorithm and congruences
3	Sep. 24-28	notes, 3.1	monoids, finite automaton, groups
4	Oct. 1-5	3.2-3.3	groups **Test #1 (Oct. 1)**
5	Oct. 8 - 12	4.1-4.3	cyclic groups
6	Oct. 15-19	5.1-5.2	permutation groups
7	Oct. 22-26	6.1-6.3;	cosets and Lagrange's theorem **Test # 2 (Oct. 22)**
8	Oct. 29-Nov. 2	7.1-7.2; 9.1-9.2;	cryptography, isomorphisms
9	Nov. 5-9	10.1-10.2;	homomorphism and normal groups **Test # 3 (Nov. 5)**
10	Nov. 12-16	11.1-11.2	Quotient groups and fundamental theorem.
11	Nov. 19-23	16.1-16.4	rings, integral domain and fields Ring homomorphisms and Ideals **Test # 4 (Nov. 19)**
12	Nov. 26-30	16.5; 17.1	maximal/prime ideals, polynomial rings
13	Dec. 3	17.2-17.3; 21.1, 22.1	irreducible polynomials, extension fields, constructions of finite fields.