COURSE INFORMATION
MATH 3GR3 (Abstract Algebra) – Fall 2019

I. Course Objectives. MATH 3GR3 is a mathematical introduction to abstract algebra. Some of the topics covered in this course are groups, subgroups, normal subgroups, quotient groups, group homomorphisms, a First Isomorphism Theorem for groups, symmetric and alternating groups, rings, subrings, ideals, quotient rings, ring homomorphisms, and the First Isomorphism for rings. The main objectives of this course are

- to learn the basic terminology and results concerning abstract algebra,
- to learn proof writing skills, and
- when applicable, use computer software.

The prerequisite for this course is MATH 2R03. An anti-requisite for this course is MATH 3E03.

II. Administrative Details.

Time	Class: MWTh 1:30-2:20, Tutorial: T 11:30-12:20
Place	Class: HH 109 Tutorial: HH 109
Instructor	Adam Van Tuyl
	Office: Hamilton Hall 419
	Office Hours: M 2:30-3:30 and Th 10:30-11:30
Text	[Required] *Abstract Algebra: Theory and Applications* by Tom Judson (2018 Edition)
	[Optional] *Mathematical Writing* by Franco Vivaldi (for first quiz)
Email	`vantuyl@math.mcmaster.ca`
Web Page	`https://ms.mcmaster.ca/~vantuyl/courses/2019_fall_math3GR3.html`

The best way to contact me is via email. The class webpage is also a good source of information. I update the webpage after every class.

III. Course Schedule. We will cover portions of Chapters 1-6, 9-11, 16-18 of Judson's book. We will spend roughly one week per chapter.

IV. Course Assessment. The final grade is composed of three components.

1. **Homework (5 Assignments)** There will be five homework assignments, given biweekly. A homework assignment will be given out biweekly on Thursday, and will be due the following Friday at 11:59PM. Assignments will be submitted via Crowdmark. You will receive an email link to your McMaster address to upload your assignment. Three to four questions will be marked carefully, and the rest of the questions will be marked for completion only.

   Exercises will usually involve proving statements using the results and concepts from the corresponding section. Exercises will also be graded on how the proof has been written. These problems will be graded out of 5 points as follows:

5 pts	A correct solution and a well written proof.
4 pts	Most of the required ingredients are present, but there are a few technical problems with the solution.
3 pts	Some of the needed ideas are present. However, the solution either lacks the final conclusion or has some problems in the exposition.
2 pts	The proof has at most one or two of the needed ideas and/or the proof is poorly written.
1 pt	An attempt to the solution has been made, but there is a major flow in the logic of the proof, or the proof is not well written.
0 pts	Little or no progress is made toward the solution.

Homework Presentation: Since an important part of this course is writing proofs, I am going to be very picky about your write up. In particular, you must use the following guidelines when writing your solutions:

- Every assignment must contain the course number, the assignment number, your name, and your student ID, and the instructor's name.
- Late homework will have **5% deducted** for every day that is late.
- The copying of assignments will result in a mark of 0 for both assignments.
- Homework may only be submitted electronically via Crowdmark. Do not send me your assignment.

2. **Quizzes (5 Quizzes)** There will be five short quizzes tentatively scheduled for the following dates:
   September 10 - Quiz 1
   September 24 - Quiz 2
   October 22 - Quiz 3
   November 5 - Quiz 4
   November 19 - Quiz 5
   Each quiz will be held in the tutorial and will be approximately 20 minutes long.

3. **Exams (2 Midterms, 1 Final Exam)** There will be two midterms and a cumulative final exam (2.5 hours). Both midterms will be held during class time (50 minutes). I will give more details about the tests (including locations) nearer to the test dates. The tentative dates of the midterm are:
   October 10, 2019 - Midterm 1
   November 14, 2019 - Midterm 2
   For all midterms and the final, you must bring your student ID. For the midterm and final, you will be allowed to use McMaster Standard Calculator is the Casio fx-991 MS or Casio fx-991 MS Plus.

Calculation of Final Mark. Your mark will be calculated in two different ways. I will take the higher mark of the following two methods.

Weight 1.

- Homework $5 \times 4\%$ each $= 20\%$
- Quizzes $5 \times 2\%$ each $= 10\%$
- Two midterm tests $2 \times 14\% = 30\%$
- Final Examination 40%

Weight 2.

- Homework $5 \times 4\%$ each $= 20\%$
- Quizzes $5 \times 2\%$ each $= 10\%$
- Maximum among {Midterm 1, Midterm 2} $= 15\%$
- Final Examination 54%

V. Class Policies. Though attendance is not mandatory, I would appreciate the fact that you show up on time if you do decide to come to class. I highly recommend that you do come to class. Some of the topics can be quite complicated.

VI. Important Dates.

Sept. 3, 2019 - First semester classes begin
Oct. 10, 2019 - Midterm 1
Oct. 14-18, 2019 - Fall break (no classes)
Nov. 8, 2019- Last day for canceling courses without failure by default
Nov. 14, 2019- Midterm 2

Dec. 4, 2019 - First semester classes end
Dec. 6-19, 2019 - Final Exams

OFFICIAL McMASTER POLICIES

1. Policy on Academic Ethics. You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at:

`http://www.mcmaster.ca/academicintegrity/`

The following illustrates only three forms of academic dishonesty: (1) plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained. (2) improper collaboration in group work, and (3) copying or using unauthorized aids in tests and examinations.

2. Academic Accommodation of Students with Disabilities. Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail `sas@mcmaster.ca`. For further information, consult McMaster Universitys Academic Accommodation of Students with Disabilities policy.

3. Requests for Relief for Missed Academic Term Work. If you have missed work, it is your responsibility to take action.

If you are absent from the university for medical and non-medical (personal) situations lasting fewer than 3 days, you may report your absence, once per term, without documentation, using the McMaster Student Absence Form (MSAF). Please see

`http://academiccalendars.romcmaster.ca/content.php?catoid=13&navoid=2208`
`#Requests_for_Relief_for_Missed_Academic_Term_Work`

Absences for a longer duration or for other reasons must be reported to your Faculty/Program office, with documentation, and relief from term work may not necessarily be granted. **In Math 3GR3, the percentages of the missed work will be transferred to the final examination.** Please note that the MSAF may not be used for term work worth 25% or more, nor can it be used for the final examination.

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar Requests for Relief for Missed Academic Term Work. Please note these regulations have changed beginning Fall 2015.

4. Academic Accommodation for Religious, Indigenous or Spiritual Observances (RISO). Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students requiring a RISO accommodation should submit their request to their Faculty Office normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

5. Important Message. The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

6. On-line Statement for Courses Requiring Online Access or Work. In this course we will be using SAGE (which can be accessed online) and Crowdmark. Students should be aware that, when they access the

electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.