Concepts in Abstract Mathematics
Winter 2020
Course Syllabus

Instructor

name	Maxence Mayrand
email	mayrand@math.toronto.edu (preferred method of communication)
office hours	TBA

Course information

webpage	https://www.math.toronto.edu/mayrand/mat246.html You are responsible for checking this webpage regularly.
course code	MAT246H1-S
section	LEC0101
first lecture	Monday 6 January 2020
last lecture	Wednesday 1 April 2020
time	Monday 15:00–16:00 Wednesday 16:00–18:00
room	PB B150 (OPA Lecture Hall)
building	Leslie L. Dan Pharmacy Building 144 College Street
prerequisite	Calculus: MAT133Y1 or (MAT135H1 and MAT136H1) or MAT137Y1 Linear Algebra: MAT223H1
exclusion	MAT157Y1
description	Designed to introduce students to mathematical proofs and abstract mathematical concepts. Topics may include modular arithmetic, sizes of infinite sets, and a proof that some angles cannot be trisected with straightedge and compass.
note	There is another section of MAT246, labelled LEC5101 and taught by Soheil Homayouni-Boroojeni, but the two sections are completely independent. We will have different exams, quizzes, and problem sets.

Teaching assistants

name	Hubert Dubé
email	hdube@math.utoronto.ca
office hours	Monday 11:00–12:00 in HU1012
name	Robin Gaudreau
email	robin.gaudreau@mail.utoronto.ca
office hours	Monday 12:00–13:00 in PG101
name	Debanjana Kundu
email	dkundu@math.utoronto.ca
office hours	TBA

Office hours start in the second week of the term (13 Jan—17 Jan).

Tutorials

section	TUT0101	
time	Monday	13:00–14:00
room	BA 1210	
TA	Hubert Dubé	
section	TUT0201	
time	Monday	16:00–17:00
room	HS 106	
TA	Debanjana Kundu	
section	TUT0301	
time	Tuesday	15:00–16:00
room	SS 2110	
TA	Robin Gaudreau	
section	TUT0401	
time	Wednesday	13:00–14:00
room	SS 1083	
TA	Robin Gaudreau	

The tutorials are a mandatory and important part of the course. Quizzes will be written during the tutorials.

The tutorials start in the second week of the term (13 Jan—17 Jan) and continue until the last week of the term (30 Mar—03 Apr), except for the reading week (17 Feb—21 Feb).

Discussion forum

We will use Piazza, which is a discussion forum where you can ask as many questions as you like, and will receive answers from other students, the TAs, or the instructor.

To join the forum, go to piazza.com and search for MAT246 LEC0101. You will also get an email invitation at the beginning of the course. Alternatively, you can sign up using this link:

https://piazza.com/utoronto.ca/winter2020/mat246lec0101

Textbook

title	**A Readable Introduction to Real Mathematics**
edition	**Second Edition**
authors	Daniel Rosenthal, David Rosenthal, Peter Rosenthal
series	Undergraduate Texts in Mathematics
publisher	Springer
year	2018

An electronic version is available here (requires UTORid login).

This is the most important resource for the course. We will follow it very closely.

Course content

Chapters 1–10 and 12 of the textbook.

Marking scheme

2 problem sets	10%
3 quizzes	15%
1 midterm exam	30%
1 final exam	45%

Problem sets

quantity	2
weight	5% each
due dates	problem set 1: Monday 03 February 2020, 11:59 pm problem set 2: Monday 16 March 2020, 11:59 pm

submission The problem sets will be sent to you two weeks before the due date via Crowdmark.

You will be asked to submit your solutions electronically via Crowdmark. No paper copy will be accepted.

To get started with Crowdmark, see this page:

https://crowdmark.com/help

The easiest way to upload your problem set is to use a scanner, but if you don't have access to one, you can also use a scanner app on your phone. Make sure that your work is legible before submitting it; otherwise, it will not be accepted.

late problem sets will be marked 0%

note You may discuss problem sets with classmates, but your final answers must be written independently, in your own words. Otherwise, this will be considered an offence under the University of Toronto's Code of Behaviour on Academic Matters (see section B.I.).

Quizzes

quantity 3

weight 5% each

duration 20 minutes

room The tutorial in which you are registered.

dates
quiz 1: tutorial of week 27 Jan—31 Jan
quiz 2: tutorial of week 10 Feb—14 Feb
quiz 3: tutorial of week 09 Mar—13 Mar

content Each quiz is a 1-page test, consisting of:

1. Statements of theorems, definitions, or principles that were seen in class.
2. A proof that was done in class.
3. One of the "Basic Exercises" in the textbook, or something very similar.

missed quiz There will be no make-up quiz. In case of an issue with writing a quiz, we can arrange for you to write your quiz in another tutorial, but you must contact us in advance.

Midterm exam

weight	30%
date	Monday 24 February 2020
time	18:00–20:00
duration	1 hour and 50 minutes
rooms	There are **two different rooms** for the midterm exam. For all students registered in TUT0101, the exam room is **EX310**. For all students registered in TUT0201, TUT0301, or TUT0401, the exam room is **ES1050**. It is very important that you go to the correct exam room. Otherwise, you will be asked to go to the other room, and hence you might start your exam late.
missed midterm	There will be no make-up midterm exam. The marking scheme will be adjusted for students who have missed it because of illness or any other approved legitimate reason. For those students, the weight of the final exam will be increased to include the weight of the midterm exam.

Final exam

weight	45%
duration	3 hours
content	Chapters 1–10 and 12 of the textbook.

How to study for this course

In addition to going to all lectures and tutorials, to succeed in this course, you need to spend a lot of time studying on your own. You will do well on the tests if you:

- Read the textbook (Chapters 1–10 and 12), many times, and make sure you understand everything.
- Memorize all proofs/definitions/theorems/corollaries/lemmas/principles of the textbook that we cover in class.
- Practice every week by doing exercises in the textbook.

Summary

week	event	weight	time
06 Jan—10 Jan	first lecture		
13 Jan—17 Jan	first tutorial		
20 Jan—24 Jan			
27 Jan—31 Jan	quiz 1	5%	during tutorial
03 Feb—07 Feb	problem set 1	5%	Monday 11:59 pm via Crowdmark
10 Feb—14 Feb	quiz 2	5%	during tutorial
17 Feb—21 Feb	reading week		
24 Feb—28 Feb	midterm exam	30%	Monday 18:00-20:00
02 Mar—06 Mar			
09 Mar—13 Mar	quiz 3	5%	during tutorial
16 Mar—20 Mar	problem set 2	5%	Monday 11:59 pm via Crowdmark
23 Mar—27 Mar			
30 Mar—03 Apr	last lecture & tutorial		
06 Apr—25 Apr	final exam	45%	TBA

Tentative schedule

week	chapters
06 Jan—10 Jan	1, 2
13 Jan—17 Jan	2, 3
20 Jan—24 Jan	3, 4
27 Jan—31 Jan	5, 6
03 Feb—07 Feb	7, 8
10 Feb—14 Feb	8, 9
17 Feb—21 Feb	reading week
24 Feb—28 Feb	10
02 Mar—06 Mar	10
09 Mar—13 Mar	10
16 Mar—20 Mar	12
23 Mar—27 Mar	12
30 Mar—03 Apr	12

Accommodations for disability

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach Accessibility Services at (416) 978 8060; studentlife.utoronto.ca/as.

Academic integrity message

The University of Toronto treats cases of academic misconduct very seriously. Academic integrity is a fundamental value of learning and scholarship at the UofT. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that your UofT degree is valued and respected as a true signifier of your individual academic achievement.

The University of Toronto's Code of Behaviour on Academic Matters outlines the behaviours that constitute academic misconduct, the processes for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this document. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment (this includes working in groups on assignments that are supposed to be individual work).

On tests and exams:

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers.
- Letting someone else look at your answers.
- Misrepresenting your identity.
- Submitting an altered test for re-grading.

Misrepresentation:

- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.
- Falsifying institutional documents or grades.

All suspected cases of academic dishonesty will be investigated following the procedures outlined in the Code of Behaviour on Academic Matters. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact me. If you have questions about appropriate research and citation methods, you are expected to seek out additional information from me or other available campus resources like the College Writing Centres, the Academic Success Centre, or the U of T Writing Website.