

MATHEMATICS 319 - Section 101

Introduction to Real Analysis

September-December 2024 (2024WT1)

Acknowledgement

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the $x^w m \theta k^w \acute{a} y \acute{a} m$ (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on in their culture, history, and traditions from one generation to the next.

Course information

A rigorous introduction to the ideas and methods of real analysis and their application.

Instructor

- instructors = Andrew Rechnitzer and Cyrille Kenne
- email = send through Canvas.
- office hours = there will be weekly office hours - see [the course webpage](#)

Class time and location

- class time = TuTh 9:30am-11:00am
- class location = [Geog 212](#)
- First day of teaching: Wednesday September 04
- Last day of teaching: Friday December 06

- So lecture of m319 is September 05 and last is December 06.
- University closed on
 - September 30 (National Day for Truth and Reconciliation)
 - October 14 (Thanksgiving Day) and
 - November 11-13 (Remembrance Day and the midterm break)

Course webpage

- [The course webpage](#) is on Canvas

Prerequisites

- a grade of 68% or higher in MATH 220, or
- a grade of 55% or higher in one of MATH 223, MATH 226.

Topics

The course will cover

- Real numbers
- Suprema and sequences
- Continuity and derivatives
- Metric spaces

Proofs are an essential part of the course material; correct and clear presentation of proofs will be emphasised throughout the course.

Text

There is no required textbook for this course, however there are a set of [online course notes here](#).

Some recommended texts are:

- Real Analysis with Applications, by Kenneth R. Davidson and Alan Donsig. Full text available online through UBC library.
 - Calculus for Cranks, by Nets Katz. [Available for free online](#)
 - Principles of Mathematical Analysis, third edition, by Walter Rudin. More suggested materials are given in the [course notes](#)
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Assessment

Breakdown of marks

- 15% Homework - one each week
- 25% Midterm - Thursday October 17th during regular class time.
- 60% Exam - in the December exam period

Homework

- See the [course webpage](#) for details
- I expect to give around 10 or 11 homework assignments.
- Homeworks will be posted on Fridays and due on Thursdays at 11pm (ie around 6 days later)
- I will not accept late homework.
- There will be no "make up" homeworks.
- Instead your homework score will be taken from the best 8 homework assignments.
- Note that if you miss a significant number of homework assignments due to valid reasons then part of the weight of the homework will be put onto the exam.

Presentation of homework

- One of the goals of Mathematics 319 is to learn how to present and communicate mathematics precisely and correctly.
- Accordingly handwritten or messy homework will not be accepted.
- **Homework must be typeset and submitted as a PDF through Canvas.**
- I recommend that you use latex to prepare your homework
- I recommend using [Overleaf](#) (which you can do free of charge) or (if you feel up to the challenge) [installing it on your own computer](#).
- You could also try [typst](#), but we cannot offer tech support for it.

Midterm - October 17th

- See the [course webpage](#) for details
- It will be held during regular class-time.
- It will be 60 minutes long (though this may be changed closer to the time).

- It will cover all topics done in class up until that point in the term unless otherwise specified.
- Note - there is no "make up" midterm - if you miss the midterm due to valid reasons, the weight of the midterm is passed onto the exam.

Exam

- See the [course webpage](#) for details
- It will cover all topics done in class unless otherwise specified.
- The exam will be held in the usual December exam period.
- As is normal for UBC, the precise time and location of the exam will not be released until around mid-October.

General syllabus information

The Mathematics Department has [standard syllabus information](#). This includes standardised policies for

- academic concessions (ie missed homework + midterm)
- academic integrity (ie cheating)
- registration issues (I have no control over anything to do with registration)
- misc student resources

You can find that information [here](#)