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# MATHEMATICS 319 - Section 101

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## Introduction to Real Analysis

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September-December 2023 (2023WT1)

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## Acknowledgement

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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.

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## Course information

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

### Instructor

- instructor = Andrew Rechnitzer
- email = send through Canvas, or alternatively via [andrewr@math.ubc.ca](mailto:andrewr@math.ubc.ca) - please put "m319" in the topic line of your email.
- office hours = there will be weekly office hours - see [the course webpage](#)

### Class time and location

- class time = MWF 12pm-12:50pm
- class location = [Maths 102](#)
- First day of teaching: Wednesday September 06
- Last day of teaching: Wednesday Decemeber 06

- University closed on
  - October 2 (in lieu of National Day for Truth and Reconciliation)
  - October 9 (Thanksgiving Day) and
  - November 13-15 (in lieu of Remembrance Day and the midterm break)
- October 12 = Thonday/Moursday
  - UBC has decided that "[Classes normally scheduled on Thursday, October 12 are cancelled and replaced by classes normally scheduled on a Monday.](#)"
  - Unfortunately this is likely to cause much confusion for everyone
  - So **tentatively** m319 will not have a class on October 12.

## 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 derivates
- 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

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### Breakdown of marks

- 15% Homework - one each week
- 25% Midterm - Wednesday October 18th 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](#).

### Midterm - October 18th

- See the [course webpage](#) for details
- It will be held during regular classtime.
- It will be 45 minutes long.
- 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.
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## General syllabus information

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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](#)

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