

# Mathematics 220

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## Mathematical Proof

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September-December 2025 (2025WT1)

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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 xʷməθkʷəy̓əm (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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An introduction to standard techniques of mathematical proof.

### Instructors

section	instructor	time	location
101	Nahid Walji	TuTh 9:30	BUCH-A201
102	Rachel Ollivier	MW 12:30	LSK-201
103	Rachel Ollivier	TuTh 12:30	LSK-201
10M	Nahid Walji	MWF 3	MATH-225

## Important term dates

- First day of teaching: Wednesday September 3
- Last day of teaching: Friday December 5
- University closed on
  - Tuesday September 30 (National Day for Truth and Reconciliation)
  - Monday October 13 (Thanksgiving Day)
  - Monday-Wednesday November 10-12 (Remembrance Day and midterm break)

## Course webpage

- [course webpage](#)

## Prerequisites

- a score of 64% or higher in one of MATH 101, MATH 103, MATH 105, SCIE 001, or
- one of MATH 121, MATH 200, MATH 217, MATH 226, MATH 253, MATH 254.

## Topics

The course will cover (approximately)

- Sets
- Basic logic
- Direct and contrapositive proofs
- Quantifiers
- Induction
- More sets
- Equivalence relations
- Functions
- Proof by contradiction
- Cardinality and infinite sets

Throughout the term we will emphasise both the mathematical correctness, and also the importance of clarity of presentation of mathematics.

## Text

- The course will follow [PLP - An introduction to mathematical proof](#) by Demirbas and Rechnitzer – with exercises contributed by Kohut and Trainor.
- The text also has links to set of short [video lectures, slides and worksheets](#)
- We also recommend the [book of proof](#) by Richard Hammack - it is also free to download.

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## Assessment

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### Breakdown of marks

- 5% weekly short quizzes on Canvas
- 20% Homework - one each week
- 25% Midterm - October 22nd and 23rd during class
- 50% Final Exam - in the December exam period
- You must achieve 40% in the final in order to pass the class.

### Canvas quizzes

- There will be two very short Canvas quizzes each week - starting from the very first week!
- The quizzes are to help you keep up to date with material and come to class prepared.
- *Before* you attempt the quizzes, you should watch some videos on the material - we'll tell you which ones.
- You can find all the videos [in a big list here](#). The slides from the videos are also there.
- Late quizzes are not accepted, but your lowest two quiz scores will not be counted.

### Homework

- See the Canvas page for details.
- We will give weekly homework assignments - starting from the very first week!

- Homeworks will be posted on Friday evenings and due on Friday a week later, before 11:59pm.
- We will not accept late homework.
- There will be no "make up" homeworks.
- Instead your lowest two homework scores will not be counted.

### Presentation of homework

- One of the main goals of mathematics 220 is to teach how to present and communicate mathematics precisely and correctly.
- Accordingly, messy homework will not be accepted.
- Homework should be written in your own words.
- We recommend that you use LaTeX to prepare your homework.
- If you don't know how to use LaTeX, we will provide you with some basic templates to get you started.
- We recommend using [Overleaf](#) (which you can do free of charge) or (if you feel up to the challenge) [installing it on your own computer](#).
- The use of LLMs (such as ChatGPT) is permitted when working on your homework, but you must always write it up in your own words. Note that LLMs are tools that may or may not be accurate, and keep in mind that you will not have access to them during the midterm or final.

### Midterm - October 22nd & 23rd

- People in MW / MWF classes will have the midterm on Wednesday the 22nd, and those in TuTh classes will have it on Thursday the 23rd.
- See Canvas for details closer to the date.
- 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 Canvas for details closer to the end of term.

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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 (i.e. missed homework + midterm)
- academic integrity (i.e. cheating)
- registration issues (your instructors have no control over anything to do with registration)
- misc student resources.

You can find that information [here](#)

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## Weather Contingency Plan

Weather Contingency Plan for Class Sessions and Exams:

You should check [ubc.ca](http://ubc.ca) often during bad weather or snow. If a class session is cancelled, please check Canvas for information. If a cancellation impacts a midterm exam, we will reschedule to another class time. If the final exam is impacted, it will be rescheduled by student services. If you are registered to write exams at the Centre for Accessibility, we encourage you to contact your CFA advisor to discuss the weather contingency plan for this course.