

Math 1120 Course Outline

1. Course Information

Course Information

Course Name: Fundamental Concepts in Mathematics

Course Code: Math 1120A

List of Prerequisites

Ontario Secondary School MCV4U or equivalence

Unless students have either the prerequisites for this course or written special permission from the Department of Mathematics to enroll in it, they may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on their academic record. This decision may not be appealed.

List of Antirequisites

Math 2155F/G.

2. Instructor Information

Instructor	Email	Office	Office Hours
Dr. Yvon Verberne			

Students must use their Western (@uwo.ca) email addresses when contacting their instructor. Please wait at least two business days for a reply.

Further office hours will be posted at the start of the semester. Office hours will be held in person.

3. Course Syllabus, Schedule, Delivery Mode

Math 1120A is an introduction to the methods and ways of thinking in modern mathematics. Math 1120A is a first course in math beyond calculus and linear algebra. This is the recommended first step for anyone interested in a Mathematics module! Topics include:

- Set Theory
- Proof techniques and logic
- Functions and relations (equivalence relations, orders)
- Elementary abstract algebra and analysis

Course Learning Outcomes:

Upon completion of the course, students will:

- Determining when a sentence is a statement, be able to produce truth tables, and apply these concepts to statements
- Write thorough, carefully written proofs using various proof writing techniques
- Be able to state and apply the definition of a set, and be able to apply basic set operations to sets
- Be able to state the formal definition of a function, apply various properties of functions, and be able to define functions between various sets
- Be able to define relations between mathematical objects
- Determining when two integers are congruent, and applying the definition of congruent integers in a proof setting

Quiz Dates:

1	September 21
2	September 28
3	October 5
4	November 2
5	November 9
6	November 16
7	November 30
8	December 7

All quizzes will occur during the first 15 minutes of class.

Midterm Dates:

1	October 19, 1:30pm – 2:20pm
2	November 23, 1:30pm – 2:20pm

Midterms occur during class time.

Important Session Dates:

Classes begin: September 9, 2026

Fall Reading Week: October 10 – 18, 2026

Classes end: December 9, 2026

Study Day: December 10, 2026

Exam period: December 11 – 22, 2026

4. Course Materials

Costs of Textbooks and Other Learning Materials/Activities

Textbook and Other Learning Materials

- **Required textbook:** *Proofs and Fundamentals: A first Course in Abstract Mathematics*, second edition, Ethan Bloch. Available in digital format from the Western Libraries. **The textbook costs \$0** when accessing the book from the Western Library.
- **Students are welcome to purchase this book, or obtain a copy licenced for printing, both of which cost additional fees.**

All course material will be posted to OWL Brightspace: <https://westernu.brightspace.com/>

Students are responsible for checking the course OWL Brightspace site regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL Brightspace site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements

Should the course be required to move online, students will require access to a stable internet connection, a working microphone, and a webcam.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Quizzes (Best 6 of 8 Equally Weighted)	10%
Midterm 1: max(Midterm 1 grade, Final Exam Grade)	25%
Midterm 2: max(Midterm 2 grade, Final Exam Grade)	25%
Final Exam	40%

Note that max(Midterm 1 grade, Final Exam Grade) (respectively, max(Midterm 2 grade, Final Exam Grade)) is a function which outputs your maximum grade between Midterm 1 (respectively Midterm 2) and your final exam grade. In particular, if your final exam grade is higher than your midterm grade, your final exam grade will replace the midterm's weight in their overall grade. Therefore, **a low midterm grade need not determine that students will receive a low final course grade.**

Quizzes will take place during the first 15 minutes of class on September 21, September 28, October 5, November 2, November 9, November 16, November 30, and December 7.

Midterms will take place during class time (50 minutes) on October 19 and November 23.

No unauthorized aids, including any electronic devices, will be permitted during any of the assessments in this course.

Use of Generative AI Tools

Generative AI tools are prohibited for each graded course assessment but may be used to complete homework. A word of warning to students attempting to use these tools for the homework: Although these tools are becoming more reliable, they are still known to make mistakes when used for courses which contain mathematical proofs. This leads students to misunderstand the course information, which can have long term consequences. Please use caution when choosing to use generative AI tools, and please consider attending office hours or reaching out to the course instructors or one of your TAs for help.

Information about Missed Coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs*, posted on the Academic Calendar:

https://uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person. The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: https://registrar.uwo.ca/academics/academic_considerations/. All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

Midterms

This course has 2 midterm tests and a **cumulative** final exam. There is no makeup test for a missed midterm. If a student misses a midterm, its weight will shift automatically to their final exam grade. If their final exam grade is higher than their midterm grade, their final exam grade will replace the midterm's weight in their overall grade. They do not need to request Academic Consideration for a missed midterm; the reweighing will be done automatically.

The only exception is an early sitting, offered solely for a university-sanctioned schedule conflict (e.g., conflict of two midterms, Varsity competitions) or a religious accommodation that prevents a student from writing the midterm at its scheduled time. If a student requires this accommodation, they must notify their instructor in writing no later than one week before the test. No other circumstance, including illness, qualifies for an early sitting or makeup; these are addressed through the automatic reweighting described above.

Quizzes

This course has 6 quizzes. The lowest two quiz grades will be dropped, and the remaining 6 quizzes will be weighted equally.

Special Examination

Per university policy, Academic Consideration requests with supporting documentation are required for the final examinations scheduled during official examination periods by the Registrar's Office.

If the student has been approved by the Academic Advising Office to write a Special Examination (SPC) and the final exam is their only outstanding course component, an SPC will be assigned to them and scheduled by the instructor per university policy.

If the student misses their SPC exam and is approved for Academic Consideration, they will be withdrawn from the course without academic penalty. If they experienced extenuating circumstances such as prolonged illness, they may appeal to the Associate Dean (Academic), on a case-by-case basis, for the opportunity to write the final exam the next time the course is offered. An outstanding SPC will reduce their course load for the term in which the exam is deferred, as outlined in the [Definitions of Types of Examinations](#) policy.

If the student misses their SPC exam and Academic Consideration is not approved, or was not requested, they will receive a grade of zero on the exam.

6. Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday either requires a student to be absent from the University, or requires or prohibits an activity that makes it impossible for them to complete an academic requirement scheduled that day, they are entitled to accommodation. No student will be penalized for an absence for religious reasons, and an alternative means of satisfying the requirement will be arranged. This accommodation is provided in accordance with the University's policy on Accommodation for Religious Holidays:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

The student should submit their requests through the Student Absence Portal (SAP), identifying the conflict and the specific course component(s) affected (e.g., test, midterm, exam).

Midterms and Tests: If a religious observance conflicts with a midterm test, they must submit their request no later than **one week** before the test. Their instructor will arrange an early sitting of the test. As set out above, no makeup test is offered for any other reason; this early sitting is available specifically for this accommodation.

Final Examinations: If a religious observance conflicts with the final exam, the student must submit their request no later than **two weeks** before the exam. Their instructor will arrange a Special Examination to take place no later than one month after the end of the examination period.

Students are responsible for finding out what was covered in any class they miss due to a religious observance, and for taking the appropriate steps to keep up with the course.

If a suitable arrangement cannot be reached between a student and their instructor, they should consult the Undergraduate Chair of the department offering the course, and if necessary, the Associate Dean (Academic) of the Faculty of Science.

For a list of recognized religious observances, please visit the calendars posted on the Equity, Diversity & Inclusion website - <https://www.edi.uwo.ca> (About Us – Resources – Additional Resources – Calendars).

6.2 Academic Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

6.3 General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

Use of @uwo.ca email: In accordance with policy, https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf, the centrally administered e-mail account provided to students will be considered the individual's official university email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the **possession** of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, hidden cameras and wireless earbuds.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at a student’s desk, on their person, or within reach during an assessment will be treated as a scholastic offence, **even if the device is not in use**.

Effective September 2026, the typical penalty for this offence is a failing grade in the course AND a 12-month prohibition on retaking the course.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is their responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is the student’s responsibility to seek clarification before using any AI tools in academic work.

Use of Software for Assessments

6.5 Support Services

Academic Advising. Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/advising/>.

Mental Health Support. Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Gender-Based and Sexual Violence. Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If a student has experienced GBSV (either recently or in the past), they can find information about support services for survivors, including emergency contacts, at:

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Accessibility for Coursework. A student may contact the course instructor if they require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to them. If they have any questions regarding accommodations, they may also contact Accessible Education at http://academicsupport.uwo.ca/accessible_education/index.html

Learning Development and Success. Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help students improve their learning skills. The facility offers strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Student Councils.

Student-run support services are offered by the University Students' Council (<https://westernusc.ca>) and the Science Students' Council (<https://www.westernssc.ca>).

6. Course Activities

Lectures

There are three weekly lectures on Mondays, Wednesdays and Fridays from 1:30pm-2:20pm in ???. It is highly recommended that you attend classes and choose to participate during class by asking questions, answering questions I ask of the class, and attempting all exercises we cover in class. This class is taught in an active learning format, and the best results will come from your participation in the class activities.

Office Hours

The course instructor will hold one hour of office hours per week from 2:30-3:20pm in MC280. More office hours will be announced at the start of the semester. If you are unable to attend these office hours, please email me to set up an individual appointment. While you are not required to attend office hours, it is an excellent opportunity to ask questions or ask for clarifications of the course work. Students who attend office hours tend to do the best, and it is important to clarify any difficulties you're having as they come up. In addition, this helps to give me the opportunity to get to know you!

Math-Physics Accelerator: The Math-Physics Accelerator is a great resource for students who require additional help with the course material. The schedule for the Math-Physics Accelerator can be found at the following link:

https://physics.uwo.ca/undergraduate/current_students/mathphysics_accelerator.html

Homework

There will be suggested exercises recommended from the textbook which correspond to the class material. These exercises are posted here and will also be posted on our OWL website. It is highly recommended that you complete each of the recommended exercises and write up the solutions to these exercises as if you were going to submit them for credit.

Section	Questions
1.2	2, 4, 7, 8, 11, 12, 13
1.3	1, 2, 3, 6, 7, 8, 10, 11, 13*
1.5	1, 2, 3, 4, 7, 8, 9
2.2	2, 3, 4, 5, 6, 7
2.3	2, 3, 5, 7
2.4	2, 3, 4, 5, 6, 8, 9, 10
2.5	3, 4, 5, 6, 7, 8, 9
3.2	1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 16
3.3	1, 2, 3, 4, 5, 10, 11, 15, 16, 17, 18, 19
3.4	1, 2, 4, 5, 6, 7
4.1	1, 5, 6, 7, 8*
4.2	1, 3, 5, 8, 9, 10, 11, 12, 14*, 15*
4.3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10*, 11*, 12*, 13*, 14*
4.4	1, 2, 4, 5, 6, 7, 12, 13, 14*, 18*
4.5	1, 2, 3, 4, 5, 6
5.1	1, 2, 3, 4, 5, 7
5.3	1, 2, 3, 4, 5, 9
5.2	1, 2, 3, 4, 5, 6
7.4	2, 3, 4, 5, 6, 8
6.3	1, 2, 3, 7, 8, 9
6.5	1, 2, 4, 6, 7, 8

Quizzes

Quizzes will occur during the first 15 minutes of class on September 21, September 28, October 5, November 2, November 9, November 16, November 30, and December 7. These quizzes are designed to make sure that you are keeping up with the course material. The material on the quizzes is not meant to be representative of the questions on the midterms or the final exam. To accommodate absences, your lowest two quiz grades will be dropped. No unauthorized aids, including any electronic devices, will be permitted during any of the quizzes.

Midterms

The midterm tests will be during class time on October 19 and November 23 and will be 50 minutes in length. These will be closed book midterms, and while cumulative, will be heavily focused on the material leading up to the midterm. No unauthorized aids, including any electronic devices, will be permitted during either of the midterms. We note that there are no makeup midterms as each midterm is calculated as $\max(\text{Midterm XX grade}, \text{Final exam grade})$.

Final Exam

The final exam will be during the final exam period. The exact date and time will be made available later on in the semester. This will be a closed book final exam, and no unauthorized aids, including any

electronic devices, will be permitted during either of the midterms. The final exam will be cumulative, and more information regarding the final exam will be made available closer to the final exam date. A student who misses the final exam due to an illness or other verified reason must follow the instructions under “Missing a Course Assessment” in this syllabus.

Math-Physics Accelerator Help Center

The Math-Physics Accelerator Help Center is an invaluable resource to students studying mathematics or physics. If you are struggling with the material in this course, please consider a visit to the Math-Physics Accelerator Help Center to chat with some of our knowledgeable teaching assistants. The calendar for the Math-Physics Accelerator Help Center is found at the following link:

https://physics.uwo.ca/undergraduate/current_students/mathphysics_accelerator.html