

Math 1120B Course Outline

1. Course Information

Course Information

Course Name: Fundamental Concepts in Mathematics

Course Code: Math 1120B

Academic Term: B

Location:

Days and Hours:

List of Prerequisites

Ontario Secondary School MCV4U or equivalence

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Counselling) to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

List of Antirequisites

Math 2155F/G.

2. Instructor Information

Instructor	Email	Office	Office Hours
Dr. Yvon Verberne	yverber@uwo.ca		

Students must use their Western (@uwo.ca) email addresses when contacting their instructors. 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 either in person or over Zoom, which will be determined by a vote at the start of the term.

3. Course Syllabus, Schedule, Delivery Mode

Math 1120B is an introduction to the methods and ways of thinking in modern mathematics. Math 1120b 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	January 17
2	January 24
3	January 31
4	February 14
5	February 28
6	March 7
7	March 21
8	March 28

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

Midterm Dates:

1	February 7, 2024
2	March 14, 2024

Midterms occur during class time.

Important Session Dates:

Classes begin: January 6, 2025

Winter Reading Week: February 15 – 23, 2025

Last Day to Drop Second-Term Half Course Without Academic Penalty: March 31, 2025

Classes end: April 4, 2025

Study Day: April 5-6, 2025

Exam period: April 7 – 30, 2025

Good Friday: April 18, 2025

Easter Sunday: April 20, 2025

Contingency plan

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

4. Course Materials

Textbook: *Proofs and Fundamentals: A first Course in Abstract Mathematics*, second edition, Ethan Bloch. Available in digital format from the Western Libraries. When accessing the book from the Western Library, the cost is \$0.

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

All course material will be posted to OWL: <http://owl.uwo.ca>.

If students need assistance with the course OWL site, they can seek support on the OWL 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

The overall course grade will be calculated as listed below:

Quizzes (Best 6 of 8 Equally Weighted)	10%
Midterm Tests (2 Equally Weighted)	50%
Final Exam	40%

Quizzes will take place during the first 15 minutes of class on January 17, January 24, January 31, February 14, February 28, March 7, March 21 and March 28.

Midterms will take place during class time (50 minutes) on February 7 and March 14.

The makeup for the first midterm will take place on February 14 and the makeup for the second midterm will take place on March 21.

6. Course Activities

Lectures

There are three weekly lectures. 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

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 January 17, January 24, January 31, February 14, February 28, March 7, March 21 and March 28. 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.

Midterms

The midterm tests will be during class time on February 7 and March 14 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. A student who misses the midterm test due to an illness or other verified reason must follow the instructions under “Missing a Course Assessment” in this syllabus. If a student does not have valid documentation or does not follow the instructions under “Missing a Course Assessment” within a week of the midterm, then the student will receive a grade of 0 on the midterm test. If a student does have valid documentation, the weight of the midterm will be transferred to the final exam.

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.

7. Student Absences

General 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://www.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.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Final exam
- Midterm exam

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Evaluation Scheme for Missed Assessments

Quizzes:

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

Midterm Examination:

A student who misses a midterm test due to an illness or other verified reason must follow the instructions under “General information about missed coursework” in this syllabus. If a student does not have valid documentation or does not follow the instructions under “General information about missed coursework” within a week of the midterm, then the student will receive a grade of 0 on the midterm test. If a student does have valid documentation, the student will be permitted to take the makeup midterm. If a student misses both the midterm and the makeup midterm and has valid documentation for both, the weight of the midterm will be transferred to the final exam.

Final Examination:

A student who misses the final exam due to an illness or other verified reason must follow the instructions under “General information about missed coursework” in this syllabus. When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

Coursework with Assessment Flexibility

By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

Flexible Completion

Quizzes: Each student will have their lowest 2 quizzes dropped at the end of term. Should extenuating circumstances arise, students do not need to request Academic Consideration for the first 2 missed quizzes. Academic consideration requests will be denied for the first 2 missed quizzes. All requests after the first 2 quizzes will be denied.

8. Accommodation and Accessibility

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

www.edi.uwo.ca

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.

9. Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

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 e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

No electronic devices will be permitted on tests and exams.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>.

10. Support Services

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

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.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will 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.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at the Student Development Centre (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on 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.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.