

### Contact Us

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## Math 1120B: Fundamental Concepts in Mathematics (Winter 2021)

### Essential information

This is an in-person course.

- **Lectures:** MWF 1:30-2:30 in SSC 2024
- **Office hours:** F 2:30-3:30 or on Discord
- **Instructor:** [Chris Kapulkin](#)
- **Email:** [kkapulki \(at\) uwo.ca](mailto:kkapulki@uwo.ca)
- **Office:** MC 116
- **Teaching assistants:** Artem Gureev, Siddharth Gurumurthy, and Ilya Vlasov
- **Prerequisites:** Ontario MCV4U or Mathematics 1600A/B

### Delivery

This course is designated as an **in-person course**.

(Following the President's Update from January 8, 2021, this course was delivered online between January 11 and February 21, 2021. The in-person instruction resumed on February 22, 2021.)

When Middlesex-London is placed under lockdown, the course will be delivered **online, via Zoom**. The Zoom information is shared with students via OWL. The online components of the course are delivered *synchronously* and *not recorded*.

Students are required to attend the lectures under their *full legal name* and to have their *webcams on*. If a student is unable to do so, they must obtain prior written permission of the instructor.

**Technical requirements:** computer with working microphone and webcam, stable internet connection, and scanner or alternative (e.g., a tablet with a stylus). It is the student's responsibility to ensure that their device meets the system requirements for Zoom.

Producing and/or distributing audio/video recordings of the lectures (both in-person and online) will be considered an academic offense and handled accordingly.

### Textbook

The course will follow:

- E. Bloch, *Proofs and Fundamentals: A First Course in Abstract Mathematics*, 2nd Edition, Springer 2011.

### Course content

The topics will include:

- propositional logic and set theory

- proof techniques (e.g., mathematical induction)
- functions and relations (equivalence relations, order relations)
- elementary abstract algebra and analysis

## Evaluation

The final grades will be based on the following components:

- ~~three midterms:  $3 \times 20\% = 60\%$~~
- **online midterm: 10%**
- **two in-person midterms:  $2 \times 25\% = 50\%$**
- nine quizzes:  $9 \times .5\% = 10\%$
- final: 30%

## Midterm exams

The **online midterm** will take place during class time on Friday, **January 29**, 1:30-2:30 PM.

The **in-person midterm exams** will take place in class on:

- Friday, **February 26**, 1:30-2:30 PM;
- Friday, **March 19**, 1:30-2:30 PM.

Additional office hours will be held before the midterms: January 28 (6-7 PM), February 24 (2:30-3:30 PM), February 25 (6-7 PM), and March 17.

## Final exam

The final exam will take place on:

- Saturday, **April 24, 9 AM - 12 PM**;
- Social Science Center 3022.

The final exam will be cumulative.

## Quizzes

There will be nine quizzes. These will either be in-person during the first 15 minutes of class or asynchronous, administered via Gradescope.ca. These will happen on the following Mondays:

- **January 18** between 8 AM and 1 PM;
- **January 25** between 8 AM and 1 PM;
- **February 8** between 8 AM and 1 PM;
- **February 22** between 8 AM and 1 PM, ~~or at 1:30 PM~~;
- **March 8** between 8 AM and 1 PM, ~~or at 1:30 PM~~;
- **March 15** between 8 AM and 1 PM, ~~or at 1:30 PM~~;
- **March 29** between 8 AM and 1 PM, or at 1:30 PM;
- **April 5** between 8 AM and 1 PM, or at 1:30 PM;
- **April 12** between 8 AM and 1 PM, or at 1:30 PM.

Each quiz will consist of three questions: one definition/theorem statement (worth 2 points) and two short proofs (each worth 4 points) similar to the recommended homework problems.

**About asynchronous quizzes:** It should take about 15 minutes to complete the quiz and you will be given 35 minutes to download, take, and upload the quiz. Each quiz will be available for 5 hours, between 8 AM and 1 PM, and you can take it at your convenience within that timeframe. While taking the quiz, you are allowed to use the textbook and your notes, but no

other resources. You are not allowed to discuss the contents of the quiz with your fellow students until the submission closes.

## Recommended homework problems

Section	Problems
1.2	2, 4, 7, 8, 11, 12, 13
1.3	1, 2, 3, 6, 7, 8, 10, 11, <i>Challenge: 13</i>
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, <i>Challenge: 8</i>
4.2	1, 3, 5, 8, 9, 10, 11, 12, <i>Challenge: 14 and 15</i>
4.3	1, 2, 3, 4, 5, 6, 7, 8, 9, <i>Challenge: 10, 11, 12, 13, 14</i>
4.4	1, 2, 4, 5, 6, 7, 12, 13, <i>Challenge: 14 and 18</i>
4.5	1, 2, 3, 4, 5, 6, <i>Challenge: 7 and 12</i>
5.1	1, 2, 3, 4, 5, 7
5.3	1, 2, 3, 4, 5, 9, <i>Challenge: 12</i>
5.2	1, 2, 3, 4, 5, 6
7.4	2, 3, 4, 5, 6, 13
6.3	1, 2, 3, 7, 8, 9, 10, 11, 12
6.4	1, 2, 3, 4, 5, 7

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## Course Websites

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

## Accommodation and Accessibility

### Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf)

## Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year.

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Consideration\\_for\\_absences](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences)

and for the Student Medical Certificate (SMC), see:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

## Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar:

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see [http://www.registrar.uwo.ca/examinations/exam\\_schedule.html](http://www.registrar.uwo.ca/examinations/exam_schedule.html)).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See Academic Calendar for details (under [Special Examinations](#)).

# Academic Policies

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

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, 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 his/her official university address is attended to in a timely manner.

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

**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](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

Completion of this course will require you to have a reliable internet connection and a device that meets the system requirements for Zoom. Information about the system requirements are available at the following link:

<https://support.zoom.us/hc/en-us>

Please note that Zoom servers are located outside Canada. If you would prefer to use only your first name or a nickname to login to Zoom, please provide this information to the instructor in advance of the test or examination.

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, in a synchronous mode (i.e., at the times indicated in the timetable). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

## Support Services

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

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 Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

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/>.

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.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.

Students who are in emotional/mental distress should refer to Mental Health@Western ([http://www.health.uwo.ca/mental\\_health](http://www.health.uwo.ca/mental_health)) for a complete list of options about how to obtain help.

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

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