

Math 2155F Course Outline

1. Course Information

Course Information

Math 2155F, Mathematical Structures Fall 2024.

List of Prerequisites

1.0 course from: Mathematics 1120A/B, Mathematics 1600A/B, Mathematics 1700A/B, Numerical and Mathematical Methods 1412A/B, Numerical and Mathematical Methods 1414A/B, Calculus 1000A/B, Calculus 1500A/B, Calculus 1301A/B, Calculus 1501A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413, in each case with a minimum mark of 60%; or permission of the department. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

Unless you have either the requisites for this course or written special permission from the undergraduate chair of mathematics 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.

2. Instructor Information

Instructors	Email	Office	Phone	Office Hours
Ajneet Dhillon	Adhill3@uwo.ca	MC 103F	X 86103	MF 11:30-noon. (in person)

Students must use their Western (@uwo.ca) email addresses when contacting their instructors. Mathematical questions should be posted in the course forums on owl Brightspace. To access them log on to Brightspace and click on the “Communications” drop down and choose “Discussion”. Post your question in the correct forum/topic.

Mathematical questions sent by email won’t receive a response.

3. Course Syllabus, Schedule, Delivery Mode

This course provides an introduction to logical reasoning and proofs. Topics include sets, counting (permutations and combinations), mathematical induction, relations and functions, partial order relations, equivalence relations, binary operations, elementary group theory and applications to error-correcting codes.

Learning Outcomes

- Students should know how to write down clear and logically valid proofs to mathematical statements
- Students should be able to understand and implement standard proof strategies such as induction, contradiction and contrapositive.
- Implement proof strategies and provide counterexamples to mathematical statements.

Classes begin: September 5, 2024;

Fall Reading Week: October 12 – 20

Spring Reading Week: February 17 – 21, 2025

Classes end: December 6, 2024; April 4, 2025

Exam period: December 9 – 22, 2024; April 7 – 30, 2025

4. Course Materials

The textbook for the course is *How to Prove It*, third edition, by Daniel J. Velleman, Cambridge University Press. It is required that you have access to this edition of the book.

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

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) 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 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

Stable internet connection and computer.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Assignments (#)	25%
Midterm Test	35%
Final Exam	40%

There will be approximately 10 homework assignments, approximately one per week. They are due on Fridays. However, assignments received within three days of the due date will not incur a penalty. In view of this flexibility, requests for accommodation for assignments will be denied.

Midterm date is Tuesday October 22nd, 2024.

Makeup midterm date is Monday November 18th, 2024.

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:

- Midterm exam (Defined by policy)
- Final exam (Defined by policy)
- Assignments (Has a no-late-penalty period)

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

If you miss the midterm and are approved for accommodations through academic counselling you will be allowed to write the makeup exam. In the event that you miss the midterm and have supporting documentation the midterm will be reweighted to the final exam.

If you are unable to submit an assignment within three days of the deadline and have supporting documentation submitted to academic counselling covering the **ENTIRE** period, your assignment score for the course will be pro-rated appropriately.

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.

Essential Learning Requirements

Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade.

- Completion of the final exam*
- A minimum of 5 completed assignments with a passing grade of 50% on each of them.

* Students who miss the final exam with approved accommodations from academic counselling will be allowed to write the makeup final exam and will be given a final course grade of SPC. Students who miss the final exam without approved accommodations will be given a score of 0/40 for the final and their course scores will be computed accordingly.

Coursework with Assessment Flexibility

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

Deadline with a No-Late-Penalty Period

Assignments. Students are expected to submit 10 assignments by the deadline listed. Should extenuating circumstances arise, students do not need to request Academic Consideration as all assignments have a 72 hour grace period for late submissions.

6. Additional Statements

Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://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.

Academic Policies

The website for Registrar Services is <https://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 are allowed in exams. This includes phones. If you are caught with a phone in an exam it is considered cheating even if you have not used the phone during the exam.

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:

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

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising 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.

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