Department of Mathematics

Mathematics 1600 — Fall 2026 Course Outline

1. Course Information

Course Information

Course Name and Number: Mathematics 1600 (Linear Algebra I)

Academic Term: Fall 2026 (FW26)

Section	LEC #	Days	Time	Room	Instructor
001					Prof. M. Franz
002					Prof. M. Pinsonnault
003					Prof. A. Medina-Mardones

List of Prerequisites

One or more of Ontario Secondary School MCV4U, Mathematics 1229A/B, Mathematics 1120A/B, Calculus 1000A/B or Calculus 1500A/B. Calculus 1000A/B or Calculus 1500A/B may be taken as a pre- or corequisite.

List of Antirequisites

Mathematics 1700A/B, Numerical and Mathematical Methods 1411A/B, the former Applied Mathematics 1411A/B, Mathematics 1229A/B, Applied Mathematics 2811B.

Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record.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

Section	Instructor	Email	Office	Office Hours
001	Prof. Matthias Franz	mfranz	TBA	TBA
002	Prof. Martin Pinsonnault	mpinson	TBA	TBA
003	Prof. Anibal Medina-Mardones (Coordinator)	amaximil	TBA	TBA

Course Contact Policies

Students must contact the instructor of the section in which they are enrolled. Emails must use their Western (@uwo.ca) email address and include the course and section number (e.g., “Math 1600 001”) in the subject line. The email should furthermore observe professional standards (a proper salutation and

valediction, and clear, complete sentences). An email that omits the correct subject line, or that is sent to an instructor other than the student's own section instructor, may not receive a reply.

Office hours (2h/week) will be held in person; details will be posted on the course OWL site.

3. Course Syllabus, Schedule, Delivery Mode

Course Syllabus

Complex numbers; vectors, lines and planes; solving linear systems; spanning sets and linear independence; matrix algebra; the fundamental subspaces of a matrix, bases, dimension and rank; introduction to linear transformations; determinants; eigenvalues and eigenvectors; similarity and diagonalization; Markov chains and other applications.

Course Learning Outcomes

At successful completion of the course, a student will be able to:

- solve computational problems (that are related to the course material, but may or may not have been discussed in exactly the given form during the course);
- state important definitions and results from the course in a precise way;
- give examples and counterexamples to the notions and results from the course;
- use correct notation and correct terminology in answers and computations.

Course Delivery

This course has in-person lectures at the times and locations specified above. Students are expected to attend all classes (this includes arriving on time) and to review the material of each class before the next one.

Key Sessional Dates (Fall 2026)

- Classes begin: Wednesday, September 9, 2026
- National Day for Truth and Reconciliation (no classes): Wednesday, September 30, 2026
- Fall Reading Week: Saturday, October 10 – Sunday, October 18, 2026
- Last day to withdraw from a Fall 12-week course without academic penalty (grade of ‘WDN’): Monday, November 30, 2026
- Classes end: Wednesday, December 9, 2026
- Mid-year examination period: December 11 – 22, 2026

Midterm Test Dates

The two midterm tests will be held on Sundays, 7:30–9:00 p.m.:

- Midterm 1: Sunday, October 4, 2026
- Midterm 2: Sunday, November 15, 2026

Locations will be posted on the course OWL site.

4. Course Materials

Textbook and Other Learning Materials

Required textbook: W. Keith Nicholson, Linear Algebra with Applications, Version 2023-A. This textbook is free and can be downloaded from the course OWL site. Cost: $0.

iClicker Cloud: Regular in-class quizzes are administered through iClicker Cloud (see Section 5.2 for how quiz performance affects the Final Exam grade). There is no physical remote to purchase and no student subscription fee, as the course is covered under Western's institutional iClicker Cloud licence. Cost: $0.

WeBWorK: Practice problems will be provided for each topic and submitted online through WeBWorK, a free online homework platform hosted by the University. These are not graded and do not count toward the course grade. Cost: $0.

All course material will be posted to OWL: https://westernu.brightspace.com/. Students are responsible for checking the course OWL site regularly for news and updates — this is the primary method by which information will be disseminated to the class, besides in-class announcements. If students need assistance with the course OWL site, they can seek support on the OWL Brightspace Help page, or contact the Western Technology Services Helpdesk (519-661-3800 or ext. 83800).

5. Methods of Evaluation

5.1 Grading Scheme and Assessment Dates

Component	Weight
Midterm Test 1 (Oct 4)	25%
Midterm Test 2 (Nov 15)	25%
Final Exam (cumulative)	50%
Total	**100%**

The course grade G combines the two midterm tests and the Final Exam as follows, where $MT1$ and $MT2$ are the Midterm Test 1 and Midterm Test 2 scores, F is the Final Exam score, and F^* is the quiz-adjusted Final Exam grade, defined in Section 5.2 below:

$$G = 0.5\,F^* + 0.25\,\max(MT1, F) + 0.25\,\max(MT2, F).$$

All variables above range between 0 and 100.

5.2 In-Class Quizzes and the Quiz-Adjusted Final Exam

Regular short quizzes are given during class through iClicker Cloud (see Section 4 for licence and cost details). There is no separate grade component for quizzes. Instead, quiz performance determines how many of the Final Exam's 100 points are secured in advance of writing the exam.

Let F denote a student's score on the Final Exam, out of 100. Let n denote the number of quiz questions posed over the term and c the number of them the student answered correctly; a missed question and an incorrectly answered question count the same. The quiz factor q is defined by:

$$q = \min(1,\, c \,/\, (0.8n))$$

so that a student who answers at least **80%** of the term's quiz questions correctly attains $q = 1$ and secures the full benefit, while below that threshold credit accrues in proportion. In all cases $0 \le q \le 1$. Up to 10 of the Final Exam's 100 points can be secured in advance through quiz performance. Academic Consideration does not apply to the quizzes; see Section 5.3.

A student's quiz-adjusted Final Exam grade, F^*, is calculated as:

$$F^* = (1 - q/10)\, F + 10q$$

This guarantees $F^* \ge F$: quiz performance can only raise a student's Final Exam grade, never lower it.

Examples: a student scoring 70/100 on the Final Exam ($F = 70$) who answered 80% of the term's quiz questions correctly reaches the threshold, so $q = 1$ and $F^* = (1 - 0.1)(70) + 10 = 63 + 10 = 73$. A student with the same Final Exam score who answered 50% of the quiz questions correctly has $q = 0.5 / 0.8 = 0.625$, giving $F^* = (1 - 0.0625)(70) + 6.25 = 65.625 + 6.25 \approx 71.9$.

5.3 Missed Coursework and Academic Consideration

This course follows the Faculty of Science's Flexible Completion practice. All missed coursework — a missed midterm test or a missed or incorrectly answered quiz question — is treated as having a value of 0 in the formulas defining G and F* above (Sections 5.1–5.2); the corresponding weight shifts automatically to the Final Exam score F, not F*. There is no makeup test for either midterm, and students should not request Academic Consideration for a missed midterm or a missed quiz question.

The only exception is an early sitting, offered solely for a university-sanctioned schedule conflict or a religious accommodation that prevents a student from writing the midterm at its scheduled time. A student requiring this accommodation must notify their instructor in writing no later than one week before the test (see Section 6.1 for the religious-accommodation procedure). A student who receives an early sitting simply writes the midterm at the alternate time; the resulting score enters the formula above like any other midterm score. No other circumstance, including illness, qualifies for an early sitting or makeup; these are addressed through the automatic substitution described above.

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, nor to students experiencing longer-term impacts on their academic responsibilities (these students should consult Accessible Education). For procedures on submitting Academic Consideration requests, see

https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date.

Per university policy, Academic Consideration requests with supporting documentation are required for the final examination, scheduled during the official examination period by the Registrar's Office. If a student is 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. 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.

5.4 Use of Generative AI

Generative AI tools are prohibited on every assessment in this course: Midterm Test 1, Midterm Test 2, the in-class quizzes, and the Final Exam. There is no assessment in this course for which generative AI use is permitted. Failure to comply with this rule will be treated as a Scholastic Offence (see Section 6.5).

6. Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday or observance conflicts with an examination, test, or other scheduled academic obligation, students must request accommodation via the University's Student Absence Portal (SAP), identifying the conflict and affected course component(s). Submit the SAP request as early as possible, but no later than two weeks before an examination, or one week before a mid-term test, to allow time for adjustment. The SAP request serves as official notification to both the course instructor and the Academic Advising Office, per University policy:

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

The Faculty of Science considers religious accommodations as scheduling conflicts; instructors will provide either a make-up test or an earlier sitting of the same test. For recognized religious holidays, see the Diversity Calendar at https://www.edi.uwo.ca.

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%20Accommodation_disabilities.pdf

6.3 General 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 is considered the individual's official university email address; it is the account holder's responsibility to ensure emails sent there are attended to in a timely manner.

Requests for Relief (formerly “appeals”):

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

Procedures (undergraduate):

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

6.4 Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (tests, midterms, and the final examination) is strictly prohibited. Students may not have on their person, at their desk, or within reach any electronic device, including but not limited to mobile phones, smart watches and other wearable devices, smart glasses, tablets, laptops, and wireless earbuds or headphones. The presence of any such device 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.

6.5 Scholastic Offences

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 website:

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

6.6 Use of iClicker for In-Class Quizzes

iClicker Cloud responses are tied to each student's own account, synced with the class roster (see Section 4 for licence and cost details, and Section 5.2 for how quiz performance affects the Final Exam grade). A student may only answer using their own account; answering on behalf of another student, or sharing quiz questions or answers with anyone before, during, or after class, is a scholastic offence.

6.7 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 other academic matters: https://www.uwo.ca/sci/counselling/.

Mental Health Support. Students in emotional/mental distress should refer to Mental Health@Western (https://uwo.ca/health/) for a complete list of options.

Gender-Based and Sexual Violence. 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.

Accessibility for Coursework. Please contact the course instructor if you require lecture or printed material in an alternate format, or if any other arrangement can make this course more accessible — or 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) offer presentations on time management, exam preparation, and textbook reading, plus individual support through the drop-in Learning Help Centre and year-round counselling.

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