Western Science

Department of Mathematics

Course Outline
MATH 1229A-Methods of Matrix Algebra[1]
Fall 2026

1. Course Information

Course Information

- *Course Name*: Mathematics 1229A (Methods of Matrix Algebra)
- *Academic Term*: Fall 2026
- *Sections*: Main campus section 200 and all tutorials 002-010.
- *Tutorial Professors:* A. Ghorbanpour, M. Mollahajiaghaei, +?
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Tutorial #	*Day*	*Time*	*Room*	*Tutorial Professor*
Tutorial 002	Mondays			
Tutorial 003	Wednesdays			
Tutorial 004	Fridays			
Tutorial 005	Mondays			
Tutorial 006	Wednesdays			
Tutorial 007	Fridays			
Tutorial 008	Mondays			
Tutorial 009	Wednesdays			
Tutorial 010	Fridays			

List of Prerequisites
One or more of Ontario Secondary School MCF3M, MCR3U, or equivalent.

List of Antirequisites
Applied Mathematics 1411A/B, 2811B, Mathematics 1600A/B, 2120A/B, 2155F/G, 2211A/B.

> 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this course or written special permission from the Department of Mathematics to enroll in it, they may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on their academic record.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.

[1] This course outline is subject to change, and any changes will be clearly communicated via the course OWL Brightspace website.

2. Instructor Information

Instructors	Email	Office	Office Hours
Dr. Asghar Ghorbanpour (Course Coordinator)	aghorba@uwo.ca		
Dr. Mohsen Mollahajiaghaei	mmollaha@uwo.ca		
Dr. Khoa Nguyen	knguyen@uwo.ca		

Course Communication Policies

- Students must use their Western (**@uwo.ca**) email addresses when contacting their tutorial professors.
- Any email sent to the instructor MUST say **Math 1229A** in the subject line; Any email without proper subject line, and/or sent from an email other than a Western email, may be deleted unread.
- The primary point of contact for each student is their tutorial professor. Unless instructed otherwise, please do not contact the course coordinator with course-related questions.
- Email is not an efficient way of contact, and response times vary wildly depending on email volume (professors may be receiving tens of emails per day). Students can use office hours for meetings with more urgent matters.

Office Hours Information

Each tutorial professor will hold at least two office hours weekly to provide help to the students of their tutorial. Information about day, time, location and format of the office hours will be provided on the course OWL website.

Math-Physics Accelerator

The Mathematics Department runs free in-person and virtual help centres each weekday during the semester, starting Monday September 21st. Our help centre is in the Math-Physics Accelerator in PAB 48/49/26 (on the lower level of the Physics and Astronomy Building.) These help centres are staffed by graduate student teaching assistants and all first-year mathematics courses are supported. No appointments are necessary.

Information about our help centre and other departmental supports for students can be found at:
https://www.uwo.ca/math/undergraduate/current_students/Help%20Centre.html

Information about other ways to get help will be posted on the course OWL website.

3. Course Syllabus, Schedule, Delivery Mode

Course Syllabus
Vectors in R^m; Equations of lines and planes; Linear Equations; Solution of Linear Systems; Matrix Algebra; Matrix Multiplication and Inverses; Determinants.

The Course Learning Outcomes
By the end of this course, students will be able to:

- **Describe** m-dimensional Euclidean space and carry out the vector operations for vectors in R^m.
- **Write** algebraic representations (as equation in different form) for different geometric objects such as lines, planes and hyper planes, in R^m.
- **Recognize** linear equations, systems of linear equations (SLE), and solutions of SLEs.
- **Solve** SLEs using different methods: Gauss-Jordan elimination method, method of inverse matrix and Cramer's rule, if applicable.
- **Perform** basic matrix operations: addition/subtraction, multiplication and powers, inverse, and transpose matrices.
- **State** what the rank of a matrix is, find it and use it to determine the number of solutions of an SLE.
- **Compute** the determinant of square matrices using different methods: expansion along rows/columns and using the properties of determinant.
- **Use** determinant of square matrices to find the inverse of invertible matrices.

Course Delivery
This is a blended course with online asynchronous and in-person components:

Online asynchronous components: The course content will be posted weekly on the course OWL website, and students can complete them anytime during that week. The online quizzes will come only with a deadline and can be completed during their opening time.

In-person synchronous components: Students must attend one hour long tutorial sessions that will be taught by their tutorial professor once a week. The midterm tests and the final exam will take place in-person.

Contingency plan
Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all 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.

Key Sessional Dates:
Classes begin: September 9, 2026
Fall Reading Week: October 10 – 18, 2026
Classes end: December 9, 2026
Exam period: December 11 – 22, 2026

4. Course Materials

Textbook

> *Second Custom Edition of Elementary Linear Algebra by S. Venit, W. Bishop and J. Brown, published by Cengage, ISBN13: 978-1-77474-365-2.* **The textbook costs $81.55.**

or the eBook version of the textbook

> *University of Western Ontario* Custom eBook: Elementary Linear Algebra, 2nd Edition (365 Days/One Year Access)-- SKU: CEB___CODEID=46047*. **365-days of access the eBook costs $75.00.**

Students are welcome to purchase second-hand of the same edition (2nd edition) of this textbook.

Both versions of the textbook are available in the Western Bookstore:
https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2026A

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
In addition to the usual math hardware: pencil, paper, and (if you are human) an eraser, you need to have access to

- Computer or laptop able to run a recent version of web browser such as Chrome, Safari or Firefox.
- Stable high-speed internet connection.
- Working microphone and webcam. (in case of pivoting to online learning)
- Document Scanner device or App. (in case of pivoting to online learning)

What is expected of the students?

- As a blended course, students learn the course content through online materials on the course OWL website, which will be provided weekly. Following that, students should attend tutorials in which their tutorial professor will review the material covered online in the previous week.
- Students should make a serious effort to learn all course material by reviewing their course notes and the corresponding parts of the textbook after each class.
- Regular homework is an essential part of the course; it is the student's responsibility to keep up with the assigned practice problems and to seek additional help if and when it is needed.
- The student must assume responsibility for staying up to date with course content and for being aware of posted deadlines such as dates for midterm tests and deadlines for online quizzes.
- The student is responsible for being aware of all relevant information posted on the OWL web site.

Further Course Policies

- All students are expected to engage online and in-person in a professional and respectful manner. This includes all interactions with peers, as well as communication between TAs or your Professor. Failure to do so will result in academic discipline.
- Recording lectures or tutorials without the explicit consent of the Professor or TA is grounds for academic discipline.
- Course content created by a faculty member is considered the faculty member's intellectual property; it should not be distributed, shared in any public domain, or sold by a student or other third party without prior written consent of the faculty member.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Online Quizzes	10%
Midterm Test 1	20%
Midterm Test 2	20%
Final Exam	40%
Best of Tests and the Exam	10%

Midterm Tests: The midterm tests and the exam will be in-person and consist of all multiple-choice questions. Each test will cover the content of four sections of the textbook, and the final exam will cover all the course material.
Here is tentative schedule for the midterms[2]

- Midterm Test 1: *Saturday, October 24, 2026; 6:00- 7:30 pm*
- Midterm Test 2: *Saturday, November 14, 2026; 6:00- 7:30 pm*

The location of the test will be announced closer to the test date

Online Quizzes: Six online quizzes will be released through the "Online Quizzes" tab on the OWL website. The quiz schedule (as well as other information about the quizzes) can be found on the course OWL website. Each quiz consists of multiple-choice questions covering two sections of the textbook. Students will have two attempts to complete each quiz; the questions in each attempt will be randomly generated from question pools and may differ from the others. Of these two attempts, the highest mark will be recorded as the student's quiz grade.
Each quiz will be available for a 6-day window and students can take the quiz any time during this window with no time limit. Students should aim to complete all quizzes by the posted deadline. We will leave the quizzes open for 48 hours after the deadline as a grace period with no late penalty.

Remark: The online quiz won't be proctored, however; they are supposed to be YOUR OWN WORK. Getting answers from a friend, from social media, or from any AI system or tool is CHEATING and is not allowed.

Information about Missed Coursework

[2] The dates/time will be finalized after they are reviewed by the exam central.

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 and Tests

This course has two 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.

Online Quizzes

This course has six online quizzes. If students miss up to two of these quizzes, they do not need to request Academic Consideration; the missing item(s) will not count against them, as their grade for this component will be calculated from their best four submissions.

If a student completes fewer than four of the total, the missing items will be recorded as a zero and included in their grade for this component. They are encouraged to submit all work, even if incomplete, since a partial mark is always better than a zero.

Deadlines: The 48-Hour No-Late-Penalty Period

All online quizzes with a stated due date include an automatic 48-hour period after the deadline during which students may still submit without a late penalty. For example, if an online quiz is due on November 5, they may submit it until November 7 without penalty. After this 48-hour period, no further submissions will be accepted, and students do not need to request Academic Consideration for a missed deadline; their grade for this component will be calculated as described above.

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.

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).