

Brief Course Outline

Course Title: **METHODS OF MATRIX ALGEBRA**

Course Number and Section

MATH

1229A 550

Instructor Name(s): Mohsen Mollahajiaghahi

Instructor Email(s): mmollaha@uwo.ca

Disclaimer: Information in the brief course outline is subject to change. The syllabus posted on OWL Brightspace is the official and authoritative source of information for the course.

Course Description:

Vectors; Equations of lines and planes; Linear Equations; Solution of Linear Systems; Matrix Algebra; Matrix Multiplication and Inverses; Determinants

Learning Outcomes: one outcome per entry

Describe m -dimensional Euclidean space and carry out the vector operations for vectors in \mathbb{R}^m

Write algebraic representations (as equation in different form) for different geometric objects such as lines, planes and hyper planes, in \mathbb{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.

Learn how to properly justify steps in mathematical calculations.

Textbooks and Course Materials:

Custom Book: Elementary Linear Algebra 2nd Edition by Venit/Bishop/Brown. The cost is \$81.55

Students are welcome to purchase second-hand or earlier editions of this textbook.

Methods of Evaluation: one assignment per entry

Assignment	Due Date mm/dd/yy	Weight - %
Quiz 1		4
Quiz 2		4
Quiz 3		4
Quiz 4		4
Quiz 5		4
Midterm		35
Final exam		45

In solidarity with the Anishinaabe, Haudenosaunee, Lūnaapéewak, and Chonnonton peoples on whose traditional treaty and unceded territories this course is shared.

Tuesday, May 12, 2026

Huron Brief Course Outline

For Textbooks and Course Materials (below), you are required to include the cost of each textbook or other learning material.

Note whether there are any restrictions that would prevent a student from using a second-hand copy. Here is some suggested text:

- Required textbook: [author, title, edition, publisher, date]. Cost: [insert amount].
 - Or include the weblink of the textbook's publisher site that includes the cost information.
- Students need to purchase this edition. Second-hand or older editions will not be sufficient.
- OR Students are welcome to purchase second-hand or earlier editions of this textbook.
- This course has an optional field trip that costs [insert amount].
- This course has a required field component that costs [insert amount].