

## Brief Course Outline

**Course Title:** **METHODS OF MATRIX ALGEBRA**

**Course Number and Section:**

MATH

1229A 551

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Disclaimer: Information in the brief course outline is subject to change. The syllabus posted on OWL 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:

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.

### Textbooks and Course Materials:

Custom Book: Elementary Linear Algebra 2nd Edition by Venit/Bishop/Brown.

SKU: 9781774743652

Cost: \$81.55

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

**Methods Of Evaluation:**

Assignment	Due Date mm/dd/yy	Weight - %
Quiz 1		3
Quiz 2		3
Quiz 3		3
Quiz 4		3
Quiz 5		4
Quiz 6		4
Midterm		35
Final exam		40
Best exam		5

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

Friday, August 15, 2025