

## Brief Course Outline

**Course Title:** **Methods of Matrix Algebra**

**Course Number and Section:**

MATH

1229B 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

### Methods Of Evaluation:

Assignment	Due Date mm/dd/yy	Weight - %
Online quizzes	Weekly	20

<b>Assignment</b>	<b>Due Date mm/dd/yy</b>	<b>Weight - %</b>
Final exam	April TBD	40
Best midterm and final exam	TBD	5
Midterm	2/12/2024	35

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

Tuesday, December 12, 2023