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 \( \mathbb{R}^m \)
- 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.

Textbooks and Course Materials:
SKU: 9781774743652

Methods Of Evaluation:

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<th>Assignment</th>
<th>Due Date mm/dd/yy</th>
<th>Weight - %</th>
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In solidarity with the Anishinaabe, Haudenosaunee, Lu'nāapéewak, and Chonnonton peoples on whose traditional treaty and unceded territories this course is shared.

Tuesday, December 12, 2023