

Math2121 Linear Algebra
Course Outline- Spring 2025

1. Instructor(s)

Name: Guowu Meng

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2. Teaching Assistant(s)

Name: T1A: Weixiao Sun. T1B: Biying Hu

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3. Meeting Time and Venue

Lectures:

Date/Time: Monday and Wednesday (10:30 – 11:50)

Venue: Classroom 2503, Lifts25/26

Tutorials:

Date/Time: T1A: Tuesday (19:00-19:50). T1B: Wednesday (19:00-19:50)

Venue: T1A: Classroom 4502, Lifts25/26. T1B: Classroom 5566, Lifts27/28

4. Course Description

Credit Points: 4

Pre-requisite: None

Exclusion: NIL

Brief Information/synopsis:

This course will cover the following topics:

- Linear systems, row reduction to echelon form
- Vectors, matrix equations, linear independence
- Linear independence, linear transformations
- Matrix multiplication, the inverse of a matrix
- Subspaces, bases, dimension
- Determinants
- Vector spaces, midterm
- Eigenvectors, and eigenvalues
- Similarity and diagonalisable matrices
- Complex eigenvalues, properties of eigenvalues
- Inner products, orthogonality, and projections
- Gram-Schmidt process, least-squares problems
- Symmetric matrices, SVDs

5. Intended Learning Outcomes

Upon successful completion of this course, students should be able to:

No.	ILOs
1	Understand the key definitions.
2	Know how to carry out computations
3	Know some typical applications
4	Solve typical problems in linear algebra

6. Assessment Scheme

- Examination duration: 4.5 hrs
- Percentage of coursework, examination, etc.:

Assessment

25% by coursework

0% discussion report & participation

75% by exam

Assessing Course ILOs

1, 2, 3, 4

1, 2, 3, 4

- The grading is assigned based on students' performance in assessment tasks/activities.

7. Student Learning Resources

Recommended Reading: 1. Linear Algebra and its Applications, 6th edition, by D. Lay, S. Lay, and J. McDonald. 2. [Interactive Linear Algebra](#)

8. Teaching and Learning Activities

Scheduled activities: 4 hrs (lecture + tutorial)

9. Course Schedule

Keyword Syllabus:

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