暨南大學 JINAN UNIVERSITY

Summer 2025

0701M340
Linear Algebra

Instructor: TBA

Time: May 12, 2025 - June 13, 2025

Office Hours: By appointment

Contact Hours: 60 (50 minutes each)

Credits: 4

E-mail: TBA

Course Description

Systems of linear equations, vector spaces and subspaces, bases, linear transformations, determinants, eigenvalues and eigenvectors, diagonalization of symmetric matrices, orthogonality, inner product spaces and quadratic forms, and application.

Prerequisites

Calculus I

Required Textbook(s)

David Poole, Linear Algebra: A Modern Introduction, 3rd edition, Brooks/Cole. (Cengage Learning) ISBN-13: 978-0538735452

On Coursesmart as eText: ISBN-13 9781111563790

Course Goals

Develop an understanding of the theory of systems of linear equations, matrices, determinants, vector spaces, and linear transformations. Develop ability to handle abstract mathematics.

Course Schedule

Please note that this schedule is meant to give an overview of the major concepts of this course. Changes may occur in this calendar as needed to aid in the student's development.

WEEK ONE

- Vectors
- Systems of linear equations and Row Reduction and Echelon Forms and Vector Equations
- Row Reduction and Echelon Forms and Vector Equations; Vector Equations and the matrix equation $Ax = b$
- The matrix equation $Ax = b$ and Solutions sets of Linear Systems
- Linear Independence and Introduction to Linear Transformations

WEEK TWO

- The matrix of a linear transformation
- Matrix Operations and the inverse of a matrix
- The inverse of a matrix ,characterizations of invertible matrices and matrix factorization
- Matrix factorization, Subspaces of R^n, and dimension and rank

WEEK THREE

- Introduction to determinants and properties of determinants
- Cramer's rule, and vector spaces and subspaces

- Null spaces, column spaces, linear transformations, and linearly independent sets and bases
- The dimension of a vector space and Rank
- **Midterm**

WEEK FOUR:

- Change of basis, Eigenvalues, and eigenvectors
- Characteristic equation
- Diagonalization
- Eigenvectors and linear transformations, and complex eigenvalues

WEEK FIVE:

- Inner product and orthogonality
- Orthogonality sets and orthogonality projects
- Gram Schmidt process
- Final Exam Review
- **FINAL EXAM (Comprehensive)**

Grading Policy

Quizzes	25 %
Homework	10%
Midterm Exam	30 %
Final Exam	35%
TOTAL	**100 %**

Written homework cannot be turned in late.

There is a quiz every Tuesday, a midterm on the third Friday and a Final Exam on the final Friday. As well, homework will be due throughout the weeks.

Grading Scale

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90~100
Good	B	80~89
Satisfactory	C	70~79
Poor	D	60~69
Failed	E	Below 60

Academic Integrity

As members of the Jinan University academic community, students are expected to be honest in all of their academic coursework and activities. Academic dishonesty, includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e., misrepresenting as one's own work any work done by another; submitting the same paper, or a substantially similar paper, to meet the requirements of more than one course without the approval and consent of the instructors concerned; or sabotaging other students` work within these general definitions. Instructors, however, determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties that range from the lowering of their course grade to awarding a grade of E for the entire course.