

Syllabus for MA 495 Linear Algebra II Winter 2025

Instructor: Qinghong Zhang

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Office Hours: 12:00-1:00, MWRT, 1:00-2:00 R; and by appointment.

Course Description: Diagonalization of matrices. Inner Products and Orthogonality. Adjoint of a Linear Transformation. Dual Space of a Vector Space. Cones of Matrices.

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

- determine whether a matrix can be diagonalizable
- diagonalize matrices
- describe the definition of an inner product space
- describe the definitions of orthogonality such as orthogonal vectors, orthogonal sets, orthogonal bases, orthogonal projections, etc.
- perform the Gram-Schmidt process
- describe the dual space of an inner product space

Evaluation of these learning outcomes will be done through assignments, quizzes, and exams.

Prerequisite: A grade of C- or better in MA211.

Textbook: Linear Algebra Done Wrong by Sergei Treil, which can be downloaded by clicking the link: https://www.math.brown.edu/streil/papers/LADW/LADW_2024_10-01.pdf

Attendance: Students are expected to attend all the classes. Attendance will be taken at the beginning of the class.

Homework, Quizzes and Tests: Homework set will be assigned, collected, and graded each week. I will drop the 2 lowest homework scores. Homework will count 15% toward the final grade. There will be three tests, and a two-hour final exam during the final exam week. I will drop the lowest test score. Each test counts 25% toward the final grade. The final exam counts 35%. It is important to take the tests and exams at the scheduled time. Generally, no make-ups will be given.

Grading: 90%—100% is an A/A-. 80%—89% is a B-/B/B+, etc.

Disability Services If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office at 2001 C. B. Hedgcock (227-1700). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.