Linear Algebra
MA 631-2E, Fall 2021

Instructor: Dr. Y. Zeng, UH 4012

Time & Location: TR, 2PM – 3:15PM, UH 4002

Office Hours: Tuesdays and Thursdays 3:30PM–4:30PM (or by appointment)

Text: A set of class notes (evolved from courses taught by several faculty members in the department) will be provided. These notes contain all definitions, theorems, and examples, but no proofs (which will be presented in detail in class).

References:

- S. H. Friedberg, A. J. Insel & L. E. Spence, *Linear Algebra*, Pearson, 5th Ed.

- P. Lax, *Linear Algebra and Its Applications*, Wiley, 2nd Ed.

- K. Jänich, *Linear Algebra*, Springer.

- S. Axler, *Linear Algebra Done Right*, Springer.

Course contents: Vector spaces; linear transformations and matrices; determinants; systems of linear equations and Gaussian elimination; eigenvalues, eigenvectors and di-agonalization; generalized eigenvectors and Jordan decompostion; minimal polynomials, Cayley-Hamilton theorem.

Grading Policy:

Homework assignments	40 %
Midterm exam (Thursday, Oct. 7, tentative)	20 %
Final exam (Tuesday, December 7, 1:30 PM – 4:00 PM)	40 %

Homework Assignments: Homework will be assigned weekly on Tuesday and due the following Tuesday, unless announced otherwise. Software package MATLAB may be used in some assignments. Homework will NOT be accepted late. However, the two lowest homework grades will be dropped to account for any missed assignments due to illness or any other circumstance. I am not planning on accepting any excuses except in extraordinary circumstances.

Exams: Midterm and Final exams will be closed-book, in-class and comprehensive.

Preparation for Joint Program Exam: This course covers the material for the theoretical part of the Joint Program Exam in Applied Linear Algebra. Past exams can be downloaded at

https://www.uab.edu/cas/mathematics/graduate/phd/qualifying-exams-testbank

Problems from past exams will also be used in homework assignments.