Introduction to Linear Algebra: MA 260 – 2B
Spring 2022

Class meets: Tuesday and Thursday 9:30 pm-10:45 am, HHB 221.
Instructor: Dr. Julia Karpeshina.
Office: 4030 University Hall, ph. 934-2154.
E-mail: karpeshi@uab.edu
Office hours: Monday and Wednesday 5.00 pm - 6.00 pm on Zoom or by appointment in person or on Zoom.

Course Content:
• Linear Equations: Gaussian Elimination;
• Matrices: Matrix Operations and Properties, Invertible Matrices and Inverses;
• Determinants: Cofactor Expansion, Row Reduction, Cramer’s Rule;
• Euclidean Vector Spaces: Vectors, Norm, Dot Product and Distance, Orthogonality;
• General Vector Space: Real Vector Spaces, Subspaces, Linear Independence, Basis, Dimension;
• Eigenvalues and Eigenvectors;
• Diagonalization: Symmetric Matrices, Orthogonal Diagonalization;
• Selected Additional Topics: Singular Value Decomposition and Applications in Image Analysis, Graph Theory, Biology.

Grading policy: There will be two Midterm Tests and the Final Exam. Each of them will be evaluated between 0% and 100%. The final grade is calculated as follows:

\[
\text{Test 1} : 25\%, \quad \text{Test 2} : 25\%, \quad \text{Final Exam} : 50\%;
\]

\[
A \geq 91\%, \quad B \geq 81\%,
\]
\[
C \geq 71\%, \quad D \geq 61\%.
\]

There will be an extra credit for homework added to the test grades. Each returned HW assignment gives 0%–2% (depending on the number of problems solved) added to your next test grade. There will be no make-up tests.
There is no extra credit for the late homework.

Regular class attendance is important and strongly encouraged. The instructor will follow the lecture notes (but occasionally include different examples), so if you have to miss a class, study the notes thoroughly. Unannounced extra-credit quizzes will be offered. Extra-credit points will be occasionally given for active class participation.

**Homework:** Problems will be assigned weekly. All HW’s are due the next Tuesday, after assignment.

Here are the tentative dates for the tests:

**Test 1:** March 3;
**Test 2:** April 19;

The exact date will be announced two weeks before a test.

**Final Exam** April 28, Thursday, 8:00 AM – 10:30 AM.

Welcome to MA 260 and best of luck to you all.