Math 260 Fall 2022 Syllabus

Course Website: http://ma260.math.metu.edu.tr/ (After classes start, Odtüclass.)

Instructors: Section 1: Ahmet İrfan Seven (aseven (at) metu.edu.tr)
Section 2: Süleyman Önal (osul (at) metu.edu.tr)
Section 3: Gökhan Benli (benli (at) metu.edu.tr) **(Course Coordinator)**
Section 4: Dilber Koçak (dkocak (at) metu.edu.tr)

Assistant: Tunahan Yılmaz (ytunahan (at) metu.edu.tr)

(Any questions regarding the course and registration can be sent to **benli (at) metu.edu.tr**, with **MATH260** in the title and including your **ID NUMBER**)

Communication policy:
Important announcements regarding the course will be shared with you by email. Thus, it is extremely important that you check your METU email regularly.

Course description:
This course aims to provide the students majoring in science and engineering with a brief introduction to linear algebra and some of its applications. By the end of the course, students will solve systems of linear equations algorithmically, using Gaussian Elimination; use matrix algebra efficiently and carry out basic proofs; decide whether an abstract set with given operations is a vector space; determine subspaces of a given vector space; find and operate with essential ingredients of a vector space (finding bases, computing dimension, checking linear independence, computing coordinates); compute determinants by cofactor expansions and by row reduction; make computation in inner product spaces, and apply Gram-Schmidt orthogonalization algorithm; compute eigenvalues, eigenvectors of a matrix and use them for diagonalization; find matrix representation of a linear transformation with respect to arbitrary basis and find the new matrix representation under change of basis.

Classes: Ahmet İrfan Seven (Section 1): Tuesday 15:40-16:30 Thursday 13:40-15:30 (YP A1)
Süleyman Önal (Section 2): Tuesday 15:40-16:30 Thursday 13:40-15:30 (IE 04)
Gökhan Benli (Section 3) : Monday 12:40-13:30 Wednesday 13:40-15:30 (YP A1)
Dilber Koçak (Section 4): Tuesday 12:40-13:30 Thursday 15:40-17:30 (YP A1)

Textbooks: Elementary Linear Algebra, 12th Edition, By Anton Howard and Anton Kaul
Linear Algebra by Cemal KOÇ

Exams: There will be two in class Midterm Exams and one Final.

Grading Policy: Your Score = (M1+M2) x 0.3 + (Final x 0.4)

Makeup Policy: You need to have an official excuse to take the makeup exam. There will be **only one** in class makeup exam for both the midterms and the final. This means you can have a makeup for only one exam and you need an official excuse for this. The makeup exam will be done after the final exam and will cover all topics of the course.

You have 48 hours after the exam to notify the course coordinator (by email) about your exam absence.

N/A Policy:

- If your two midterm scores **add up to less than 20 points**, (i.e., M1+M2 < 20) then you shall not be able to take the final exam and get an NA grade.
- If you will take the makeup exam for one of the midterms and your score of the other midterm is **less than 10**, then you shall not be able to take the final exam and get an NA grade.
- If you miss more than one midterm, then you shall not be able to take the final exam and get an NA grade.

(Tentative) Weekly Schedule: (Section Numbers are from the textbook)

W1 – Oct. 3	**1.1 Introduction to Systems of Linear Equations 1.2 Gaussian Elimination**
W2 – Oct. 10	**1.3 Matrices and Matrix Operations** **1.4 Inverses; Algebraic Properties of Matrices**
W3 – Oct. 17	**1.5 Elementary Matrices and a Method for Finding A^{-1}** **1.6 More on Linear Systems and Invertible Matrices**
W4 – Oct. 24	**2.1 Determinants by Cofactor Expansion** **2.2 Evaluating Determinants by Row Reduction**
W5 – Oct. 31	**2.3 Properties of Determinants; Cramer's Rule**
W6 – Nov. 7	**4.1 Real Vector Spaces** **4.2 Subspaces**
W7 – Nov. 14	**4.3 Spanning Sets** **4.4 Linear Independence** **4.5 Coordinates and Basis**
	Midterm 1, Thursday, November 17, 17:40
W8 – Nov. 21	**4.6 Dimension** **4.8 Row Space, Column Space, and Null Space** **4.9 Rank, Nullity, and the Fundamental Matrix Spaces**
W9 – Nov. 28	**5.1 Eigenvalues and Eigenvectors** **5.2 Diagonalization**
W10 – Dec. 5	**6.1 Inner Products** **6.2 Angle and Orthogonality in Inner Product Spaces** **6.3 Gram–Schmidt Process**
W11 – Dec. 12	**7.1 Orthogonal Matrices** **7.2 Orthogonal Diagonalization**
W12 – Dec.19	**8.1 General Linear Transformations** **8.2 Compositions and Inverse Transformations**
	Midterm 2, Thursday, December 22, 17:40
W13 – Dec. 26	**8.4 Matrices for General Linear Transformations** **4.7 Change of Basis**
W14 – Jan. 2	**8.5 Similarity**

Information for Students with Disabilities

To obtain disability related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the ODTÜ Disability Support Office as soon as possible. If you need any accommodation for this course because of your disabling condition, please contact me. For detailed information, please visit the website of Disability Support Office: http://engelsiz.metu.edu.tr/

Academic Honesty

The METU Honor Code is as follows: "Every member of METU community adopts the following honour code as one of the core principles of academic life and strives to develop an academic environment where continuous adherence to this code is promoted. The members of the METU community are reliable, responsible and honourable people who embrace only the success and recognition they deserve, and act with integrity in their use, evaluation and presentation of facts, data and documents."