Fall 2023

MATH 125, Basic Mathematics I

Frequency: Fall Semester

METU Credit: 4(3-2)

Catalog description: Logic. Relations and Functions. Matrices and determinants. Inverse of a matrix, matrix polynomials, Cayley-Hamilton theorem. Systems of linear equations, parametric solutions. Counting: principle of inclusion exclusion, pigeonhole principle. Mathematical induction, recursive relations. Permutations, combinations. Discrete probability. Graphs.

Course instructor: Özcan Yazıcı (wwwma125@metu.edu.tr)

Schedule: Monday 08:40 – 10:30 (G111)

Wednesday 08:40 – 09:30 (G111)

Office Hours: Wednesday 09:40 – 10:30 (M127)

Wednesday 14:40 – 15:30 (M127)

Course Assistant: Hakan Yeter (wwwma125@metu.edu.tr)

Suggested textbook: Basic Mathematics 1 by M. Dabbagh and A. Doğanaksoy

(can be found at Mathematics Department, Room Z23)

Course Webpage: http://ma125.math.metu.edu.tr/ and ODTUClass Math 125

Grading Policy:

- Midterm 1: 30% **(November 18, 2023 Saturday at 13:30)**
- Midterm 2: 30% **(December 23, 2023 Saturday at 13:30)**
- Final: 40% **(January 11, 2023 Thursday at 13:30)**

Quiz(Bonus) 5% ((During Recitations)

Contact: wwwma125@metu.edu.tr

Only the e-mails sent to wwwma125@metu.edu.tr will be answered. Mass e-mails will be ignored.

Week	Dates	MATH 125 Tentative Syllabus Fall 2023 (2023-1)
1	**Oct. 2 - 6**	Chapter 1: Logic, Sets Basic definitions, subsets, power set, set operations
2	**Oct. 9 - 13**	Propositions, truth tables, tautology, contradiction
3	**Oct. 16 - 20**	Proof techniques, quantifiers and predicates.
4	**Oct. 23 - 27** **October 29, Republic Day**	Chapter 2: Functions and Relations Functions Basic definitions, properties, composition, inverse. Relations: Binary relations, equivalence relations, partition.
5	**Oct. 30 - Nov. 3**	Special Functions: Polynomial functions, logarithms, exponential functions, elementary trigonometric functions and their inverses, basic properties and graphs, trigonometric identities
6	**Nov. 6 - 10** **November 10, Commemoration of Atatürk**	Chapter 3: Matrices Basic definitions, square matrices, operations on matrices
7	**Nov. 13 - 17**	Inverse of a matrix, determinant of a matrix **Midterm 1: Nov. 18, 2023, Saturday at 13:30**
8	**Nov. 20 - 24**	Matrix polynomials, row echelon form of a matrix.
9	**Nov. 27 - Dec. 1**	Chapter 4: Systems of Linear Equations Linear equations, systems, and their solutions
10	**Dec. 4 - 8**	Cramer's method, Gauss elimination method.
11	**Dec. 11 - 15**	Chapter 5: Counting Mathematical induction, Recurrence relations, solving recurrence relations by iteration
12	**Dec. 18 - 22**	Solving linear homogenous recurrence relations with constant coefficients, recursive functions, The pigeon hole principle, and the generalized pigeon hole principle. **Midterm 2: Dec. 23, 2023, Saturday at 13:30**
13	**Dec. 25 - 29**	Basic counting rules, permutations, combinations, algebra of combinations, Pascal equality, Binomial theorem.
14	**Jan. 1 - 5**	Probability
		Final Exam: JANUARY 11, 2023, THURSDAY at 13:30

MATH 125 Course Policies (2023-1)

This document contains all the information you need to know about the structure of the **MATH 125 (Basic Mathematics I)** course. More information will be announced on the course home page and the ODTUClass page. All students enrolled in this course are supposed to follow these websites regularly.

The MATH 125 coordination reserves the right to make necessary changes in this policy depending on situations which are out of our control. So it is your responsibility to follow the announcements in the webpage of the course regularly.

Lectures and Recitations

Lectures and recitations are delivered as scheduled in View Program Course Details (64). Keep in mind that this course is **5 (=3+*2*) hours per week**.

The first 3 (=2+1) hours are for **lectures** and the last 2 hours are for **recitations**. See the "schedule of lectures" on the MATH125 web page when available. For details about sections and subsections, see the page: What is a section/subsection?

Class Attendance

Attendance during lectures and recitations will not be taken. However, you are strongly recommended to attend the lectures and recitations.

Make-Up for Exams and Assignments

You can take at most one make-up exam. In order to be able to take the make-up exam, you must present a reasonable excuse (such as a medical report or an academic leave).

After the final exam, there will be a form on ODTÜClass and via that form, you will apply to take the make-up exam instead of one missed exam and you will send your reasonable excuse to **wwwma125@metu.edu.tr**.

Information for Students with Disabilities

Students who experience difficulties due to their disabilities and wish to obtain academic adjustments and/or auxiliary aids must contact ODTU Disability Support Office and/or course instructor and the advisor of students with disabilities at academic departments (for the list, see http://engelsiz.metu.edu.tr/en/advisor-students-disabilities) as soon as possible. For detailed information, please visit the website of Disability Support Office: https://engelsiz.metu.edu.tr/en/

Academic Honesty

The METU Honor Code is as follows: "Every member of METU community adopts the following honor 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 honorable 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."