

**METU - MATHEMATICS DEPARTMENT**  
**2013 – 2014 Fall semester**  
**Math 111 – Fundamentals of Mathematics**

**Objectives:** The main goal of this course is to enable the student to comprehend and construct mathematical arguments, as well as to develop the student's mathematical maturity by providing basic definitions, facts and tools necessary. It is to your advantage to learn how to write mathematics as early as possible. If you do well in this course, then it is very likely that you will have no trouble in the rest of your education in the mathematics courses.

**Instructors:** Gülin Ercan, Sergey Finashin, Mahmut Kuzucuoğlu, Ömer Küçüksakallı.

**Textbook:** *Proofs and Fundamentals*, Ethan D. Bloch, Second Edition.

**Reference:** *How to Prove It*, Daniel J. Velleman, Second Edition.

**Course web page:** <http://www.metu.edu.tr/~komer/111>

**Tentative outline:**

- i) Informal Logic (2 weeks).
- ii) Strategies for Proofs (2 weeks).
- iii) Sets (1.5 weeks).
- iv) Functions (2.5 weeks).
- v) Relations (3 weeks).
- vi) Finite Sets and Infinite Sets (3 weeks)

**Exams:**

- Midterm 1: November 5, Tuesday (30%).
- Midterm 2: December 19, Thursday (30%).
- Final: To be announced (40%).

**Make-up policy:** Only one make-up examination will be offered. The excuse for not attending an examination must be proved with documents. The make-up examination will take place shortly after the final exam.

**Attendance policy:** You are required to attend at least %70 percent of classes. If you need to attend the classes in a different section than you are registered, then you must ask the permission of both instructors.

**Advice for success in the course:** You should study regularly starting from the first day. If you do this you will not need to study for the exams. It is a very bad strategy to skip classes to study for the nearest exam! If you come to the class a little prepared you will learn much more, and if you do a little after study you will know what you have learned and what remains unclear. Then you can go to your instructor with a clear question. Therefore we suggest everyone who is planning to be successful in this course to STUDY REGULARLY. For example, read the relevant part of the book before coming to class, especially the new definitions.