What is this course about?

Math 131 is a course in point-set topology with a brief incursion into algebraic topology. For some of you, this will be the first encounter with abstract mathematics, where instead of real numbers we will deal with abstract topological spaces and the abstract notion of continuous function. The topics will include:

- Metric and topological spaces;
- Compactness;
- Elements of functional analysis;
- Covering spaces and the fundamental group.

For the week-by-week content please refer to the file “Synopsis” posted on the course webpage.

Prerequisites

Math 23 or higher. You must have the ability to write mathematical proofs.

Literature

By and large, we will follow “Topology” by James Munkres.

Homework

Homework is the most important part of the course. In fact, it is fair to say that you will develop most of the mathematics yourselves in the form of guided step-by-step homework problems. Most of the theorems in the course will be proved in this way.

Homework will be assigned every Thursday and will be due on Tuesday the following week. I apologize for not giving the full week to work on the problems, but this is the only conceivable way to ensure that the last week’s material has been fully digested, before we tackle new topics the following week.

You are allowed and even encouraged to collaborate with other students while doing homework. However, solutions must be written independently, and under no circumstances should you write someone else’s solution if you do not fully understand it.
All homework **must be typed** in TeX (or similar editor). No handwritten work will be accepted.

There is **no allowance** for late homework. If you realize that you cannot turn in your HW on time, please **alert me immediately**.

**Grades and Exams**

There will be two take-home midterms (one after Week 4 and another after Week 8), and a take-home final. No collaboration is allowed on the midterms and the final.

The grade will be the function of the score, which will be calculated by the formula

\[
50\% \text{ (Homework)} + 15\% \text{ (1-st Midterm)} + 15\% \text{ (2-nd Midterm)} + 20\% \text{ Final.}
\]

Two lowest-scoring PSets will be dropped in the calculation of the average, provided that all PSets are turned in and score above 50\% of their totals (a PSet scoring less than 50\% will be counted toward the average).