

Math 631: Topology of Metric spaces, Spring 2018.

[Homework problems](#)

[Audio recordings of lectures](#)

Office Hours: Thursdays 4-5:55 and by appointment, in 4113 Exploratory Hall. This is a chance to clear up confusion, discuss administrative issues, or just chat about the material and related ideas. Students are encouraged to regularly attend scheduled office hours, but this is not mandatory.

Class: Tuesdays-Thursdays 5:55-7:10. Class will be mostly lecture-based, but with some time devoted to group-based problem sessions and student presentations.

Homework: Homework problems will be posted on Tuesdays and collected in-class on the following Tuesdays. All homework solutions must be typed, preferably in LaTeX, and printed. Solutions should be about 1-2 pages in length.

Clear explanations are hard to write, so you should expect to spend time rewriting and editing your solutions. To incentivise this, solutions will be graded not only for correctness, but also for simplicity and clarity of explanation.

Late homework will be accepted only as an exception.

Collaboration: Collaboration on studying and homework is encouraged: that's part of the fun of doing math. You should also make sure you are the one learning: even if you solve a problem in a group, you should write and re-write the solution yourself; this will help you understand the problem and improve your ability to explain complicated concepts. On the other hand, exams are not about fun. No outside consultation or notes will be permitted during exams.

Evaluation: In addition to the homework (worth 25% of the grade), there will be a midterm (25%) and final exam (50%). The midterm will be on March 8, on the last day before spring break. The final will be on May 11, 4:30-7:15.

Attendance: You should be in class, and you should participate in both in-class activities and lectures. Missing class or failing to participate should be an exception.

Good faith: I will assume you're following class policies in good faith. If this is abused, the policies and enforcement will change.

Course Content: We will cover the material for the topology preliminary exam, see [this link](#). We will thoroughly cover the necessary chapters 2-5 of Munkres' Topology, and then cover additional material as time permits. Hopefully this will include the Arzela-Ascoli Theorem in Chapter 7, as well as fundamental groups and covering spaces in the later chapters.

Background: Going into this graduate course, I expect you to be relatively fluent in mathematics and able to understand and provide definitions and proofs. You should be familiar with all of the content of Chapter 1 of the book, especially the first seven sections: logic, functions, relations, integers, real numbers, Cartesian products, finite sets, countable and uncountable sets. I expect you to be less familiar with the remaining sections, but to learn them quickly if you have not seen them before: recursive definitions, infinite sets and the axiom of choice, the maximum principle, and well-ordering.