Math 871 Topology I
Fall 2026 Syllabus

Instructor: Eloísa Grifo (please address me as Eloísa) email Avery 331 course webpage

Class times: Mondays, Wednesdays, and Fridays 1:30–2:20 pm in Burnett Hall 121

Office Hours: Mondays 5–6 pm and Fridays 10:30–11:30 am.
You can also drop by my office any time, or email me to schedule a meeting.

Course Description. This course is the first half of a year long introduction to topology. In this first half of the course, we will primarily discuss point set topology. The main part of the course will cover most of chapters 2–4 and chapter 9 of Munkres' textbook and parts of chapters 0–1 of Hatcher's book, including: basic definitions and examples of topological spaces and continuous functions, properties of topological spaces used to distinguish between shapes (such as connectedness, compactness, separability), deforming one space into another (homotopy), the fundamental group, and applications. The central learning objective of the course is to develop skills in logical reasoning and reading and writing proofs.

Textbook. I will provide you with course notes; we will largely be following the following books:

Topology, Second Edition, by James R. Munkres, Prentice Hall, 2000.
Algebraic Topology, by Allen Hatcher, available on the author's website.

Course expectations. This is an in-person class. Attendance is expected, though please do not attend class if you are feeling ill.

Problem sets. There will be weekly problem sets. You are encouraged to work on the problem sets together in groups, or discuss them with me, and to use our class notes; you should however write up your own solutions. See below for more on AI usage.

Midterms and final exam. There will be three in-person **midterms** on September 28, October 26, and November 23, 5:30–7:30 pm. The final exam will be on **Wednesday, December 16**, 1–3 pm.

Final grade. Your final grade will be calculated as follows:

Component	Midterm 1	Midterm 2	Midterm 3	Final Exam	Problem Sets
Value	20%	20%	20%	20%	20%

Your final grade will be determined according to the following scale:

Letter grade	A	A-	B+	B	B-	C+	C	D
Cutoff	93	90	87	83	80	77	73	50

Adjustments to this scale could be made, but only in favor of the students. A grade of A+ might be assigned in the case of truly exceptional work.

Continuity plans. If in-person classes are canceled, I will notify you of the plan for this class by email.

AI policy. One of the main goals of this class is to help you develop skills in proof writing that involve not just crafting clear and complete proofs, but also knowing *where* and *how* to start looking for a proof. I do not expect mathematicians to avoid AI forever. During this course, however, I expect you to start developing the mathematical judgment needed to use such tools responsibly. You cannot reliably evaluate an AI-generated argument until you can construct and evaluate such arguments yourself. Most importantly, producing mathematics is a beautiful human endeavor, and graduate school, and this class in particular, is meant to help you on your journey to become a mathematician.
Here are the two guiding principles for AI usage in this class:

- Any use of AI that helps you learn the material and enhances your understanding is allowed.
- Any use of AI that substitutes for your own understanding of the material is forbidden.

The line between these can be difficult to delineate, so here are some guidelines:

- Do not use AI to produce any part of a proof for a problem assigned for credit, including hints, proof strategies, or intermediate steps.
- After writing a complete proof that you believe to be correct and as well-written as you can make it, you may ask AI to identify gaps in reasoning, unclear exposition, or places needing further justification. You may not ask AI to repair those problems, provide missing arguments, rewrite passages, or suggest alternative proof strategies. For example:

  Tell me whether the following argument is a rigorous proof of Statement X. If it is not, identify the flaws, but do not suggest how to fix them.

  A **preferred** version is to ask only whether the proof is correct, without asking AI to identify the flaws, so that you still have to find them yourself.
- If you do not know where to start, ask me for hints! You are strongly encouraged to discuss the problem with your classmates and with me. Explaining partial ideas, asking good questions, and identifying gaps in one another's arguments are important parts of learning to do mathematics collaboratively.
- You may use AI for alternative explanations of concepts and proofs already covered. But AI is fallible, so our class notes, textbooks, and conversations with me or your classmates should be your first resources.
- You may ask AI to remind you of definitions and notation, but conventions may differ from ours; use the course notes first.
- Any AI use connected to mathematical work you submit must be disclosed. Identify the AI tool and include the relevant prompts and responses or a shareable link to the conversation.
- You may use AI for LaTeX help, including complicated errors. Show it only the minimum amount of your TeX file needed to isolate the issue, and try to learn from its answers rather than simply copying its solutions. I will use AI in this way when preparing our course notes.

In addition, the following uses of AI are unacceptable:

- Do not use AI to write, rewrite, or improve text that you submit for course credit. You may ask AI to critique your writing, but not to supply or rewrite the text for you.
- Do not upload or paste any of my lecture notes, problem sets, exams, worksheets, solutions, or other instructor-created course materials into an AI system. You may quote the minimum information necessary for AI to evaluate your own work, such as the statement of a theorem or problem, unless I specifically tell you otherwise.

An AI saying that your proof is correct does not establish that it is correct. You are responsible for every mathematical assertion in work you submit, including arguments that AI has declared correct.

Departmental grading appeals policy. The Department of Mathematics does not tolerate discrimination or harassment on the basis of race, gender, religion, or sexual orientation. If you believe you have been subject to such discrimination or harassment, in this or any other math course, please contact the department. If, for this or any other reason, you believe your grade was assigned incorrectly or capriciously, then appeals may be made to (in order) the instructor, the vice chair, the department grading appeals committee, the college grading appeals committee, and the university grading appeals committee.

Continuity plans. If in-person classes are canceled, you will be notified of the instructional continuity plan for this class by email.

Other policies and resources. can be found here.