

## MATH 430: INTRODUCTION TO TOPOLOGY

SPRING 2025 SYLLABUS

“The theory of fundamental groups and covering spaces, with particular reference to two-dimensional manifolds.”

INSTRUCTOR Minh-Tâm Trinh ([minh-tam.trinh@yale.edu](mailto:minh-tam.trinh@yale.edu))

TIME MW 11:35 AM–12:50 PM

PLACE 17 Hillhouse Ave, Room 03 (basement)

WEBPAGE <https://mqtrinh.github.io/math/teaching/yale/math-430/>

We will mostly use the textbook by Munkres, *Topology*, 2nd Edition. If you cannot find a copy online, please let me know. I may or may not post course notes, but I will aim to follow Munkres in content.

### TOPICS

- (1) Topological Spaces and Continuous Maps
- (2) Connectedness and Compactness
- (3) The Fundamental Group
- (4) The Seifert–van Kampen Theorem
- (5) Covering Spaces

### LOGISTICS

**Office Hours.** By appointment.

**Emails.** If you need to email me about the course, please put “MATH 430” in the email subject. That helps me keep everything organized. You may address me as “Minh-Tam” or as “Dr. Trinh”.

**Grades.** I will assign nine problem sets (each 4% of the total grade) and a midterm (24%) before the final exam (40%). The midterm will be held in class on **Monday, February 24**.

Problem sets will be due by 11:59 pm in Gradescope on their due dates. Access Gradescope through the navigation bar for MATH 430 in Canvas. You can always submit homework **up to four days late** for 50% credit. You also get **two chances** to request no late penalty. *Please try to reserve these for illness and/or family tragedy.* We will not grant any other extensions.

On problem sets, you must cite any collaborators or sources used: Failure to do so is plagiarism. Please write in complete sentences. To discourage you from relying on large language models, we will adopt a grading scheme that penalizes typos lightly and conceptual mistakes harshly.

There is no attendance grade. If you get sick, please stay at home and take care of yourself.

## SCHEDULE

(\*) No class on Monday (1/20), Martin Luther King Day. That week, class will be held on Wednesday and Friday.

(\*\*) No class on Monday (4/7).

Week	Munkres §	
1/13	12, 18, 16	
1/20 (*)	20–21, 13	PS1 due 1/22
1/27	15, 19, 22	PS2 due 1/29
2/3	17, 21, 23	PS3 due 2/5
2/10	24–26	PS4 due 2/12
2/17	27–28, 30	
2/24	51	Midterm ( <b>Mon, 2/24</b> )
3/3	51–52, 54, 59	PS5 due 3/5
3/10		<i>Spring Recess</i>
3/17		<i>Spring Recess</i>
3/24	58, 68–69	PS6 due 3/26
3/31	70, 72–73	
4/7 (**)	70	PS7 due 4/9
4/14	53	PS8 due 4/16
4/21	53, 79	PS9 due 4/23