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)
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, 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	PS4 due 2/12
2/24	51	Midterm (**Mon, 2/24**)
3/3	51–52, ~~54, 59~~	PS5 due 3/5
3/10		*Spring Recess*
3/17		*Spring Recess*
3/24	54, 59, 58, ~~68–69~~	PS6 due 3/26
3/31	68–69, 70, ~~72–73~~	
4/7 (**)	~~70~~ 72–73	PS7 due 4/9
4/14	70, 53	PS8 due 4/16
4/21	53, 79	PS9 due 4/23