

# MAT327 Lecture Notes

ARKYTER

'24 Fall Semester

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## §1 Day 1: Open Sets and Continuity (Sep. 3, 2024)

This class is *MAT327*; 3 meaning third year, 2 meaning the contents are on the fundamental side, and 7 meaning no mercy.

– Dror Bar-Natan

Course administration matters first;

- The course link is given [here](#) (this will link straight to Quercus).
- The textbook is [James Munkres' Topology](#) (online PDF: [ETH Zurich mirror](#)); Prof Bar-Natan strongly recommends a paper copy, though (since people get distracted on the computer).

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Today's reading in the textbook is on Ch. 1, sections 1 to 8, and Ch. 2, sections 12 to 13. Readings are supplementary to lecture material<sup>1</sup>. The goal of this course is to understand continuity in its most general form; in particular,

- In MAT157, we studied continuity in  $f : \mathbb{R} \rightarrow \mathbb{R}$ ;
- In MAT257, we will study continuity in  $f : \mathbb{R}^n \rightarrow \mathbb{R}^m$ ;

but in this class, we will study continuity in  $F : X \rightarrow Y$ , where  $X, Y$  are arbitrary spaces, such as (but not limited to)  $\mathbb{R}^n$ ,  $\mathbb{R}^{\mathbb{N}}$ ,  $\{0, 1\}^{\mathbb{N}}$  (binary sequences), and so on.

testing

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<sup>1</sup>irc it won't be tested unless specified. its still good to learn tho