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MAT1301S - Algebraic Topology

Toronto, Spring 2025

Agenda. Learn about the surprising relation between the easily deformed (topology) and the most rigid (algebra).

Ambition. Get to the Wirtinger presentation of the fundamental group of knot complements and to the definition of the Alexander polynomial as the order ideal of the first homology of the universal Abelian cover of a knot complement. Both of these goals are just a bit too far, yet they can serve as perfect motivators for all that isn't too far.

Instructor. [Dror Bar-Natan](#), drorbn@math.toronto.edu (for course administration matters only; math on email is slow and prone to misunderstandings, so I generally avoid it). Office: Bahen 6178.

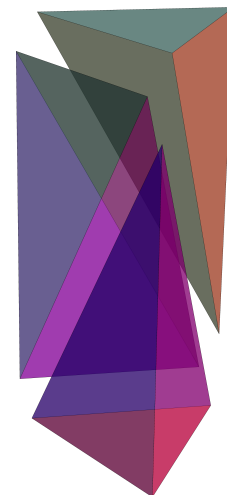
Teaching Assistant. Hadi Azizi, ??@mail.utoronto.ca.

Classes. Mondays 1-2 and Tuesdays 2:30-4:30, at Bahen 6183.

Office Hours. Tuesdays at 9:30-10:30 at Bahen 6178 and online at <https://drorbn.net/vchat>.

Text. Alan Hatcher's [Algebraic Topology](#).

URL. <https://drorbn.net/25-1301>.



Course Calendar

#	Week of ...	Reality	Ambitious Dreams
1	January 6-10		The fundamental group and $\pi_1(S^1)$
2	January 13-17		Categories, functors, and the Brouwer fixed point theorem
3	January 20-24		Homotopy invariance and van Kampen's theorem
4	January 27-31		Various π_1 computations culminating with the Wirtinger presentation
5	February 3-7		Covering spaces and π_1 -sets
6	February 10-14		
R	February 17-21	Monday is Family Day, and the week is Reading Week - no classes and no office hours.	
7	February 24-28		
8	March 3-7		
9	March 10-14		
10	March 17-21		

#	Week of ...	Reality	Ambitious Dreams
11	March 24-28		
12	March 31 - April 4		

Further resources:

- The University of Toronto [School of Graduate Studies Calendar](#).
- [My 25-1301 Pensieve Folder](#).
- The source files used to create this page: [sources.zip](#).