

Topics in Geometry: Introduction to Knot Theory

This is a math class about knots. While these are objects that arise relatively naturally in a variety of day-to-day and scientific settings, our challenge will be to carefully sort out how to describe, and ultimately study, knots using mathematical tools.

Here are some further remarks about this class:

- In a mathematical context, the study of knots falls into a broader area of research called *topology*, which is a branch of geometry (in a broad sense). However, topology (Math 426, for instance) **is not** a prerequisite for this course and as such we won't really take this point of view; our course will be more combinatorial in nature, building from the ground up.
- The course does, on the other hand, have prerequisites in the form of linear algebra (Math 221/223 or similar) and mathematical proof (Math 220 or similar). **We will rely on both.**
- This course will take the point of view that knots are a naturally occurring objects—worthy of study in their own right. While I will draw on examples found "in nature" from time to time, this won't be the main emphasis of the course. Instead, this course is meant to provide a window to pure mathematics research, and hopefully provide a partial answer to the question "what do mathematicians do?"

The course will meet using Zoom, [scheduled in Canvas](#).

The course is undergoing an adaptation to a fully-online version in response to the Covid 19 pandemic; [a previous version of this course can be found here](#).

Please bear with us!

To view the full content of this course, including lecture summaries and assignments, turn off reader-view.