

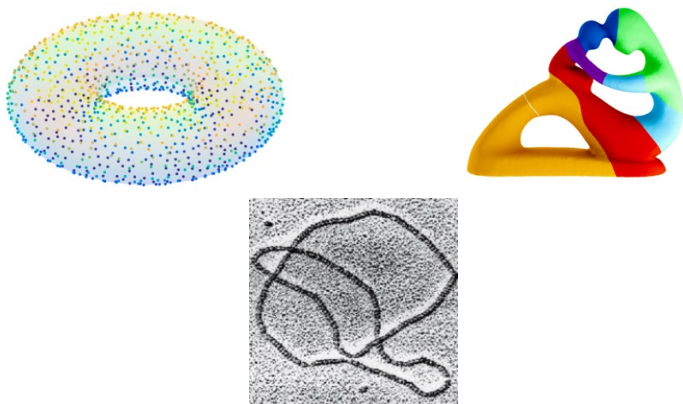
## MATH 4760/8766: APPLIED TOPOLOGY

mw 4:00–5:15pm | Remote Synchronous | Dr. Ying Hu

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### Course description:

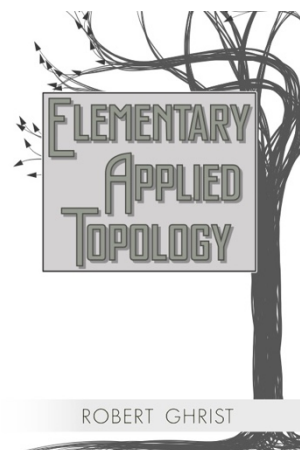
Topology is the mathematics to studying **shapes of topological spaces**. In theory, any collection of subjects can be made into a topological space. It can be tangible, such as a river or a table; it can also be abstract, such as spacetime and data set. As such, the application of topology in modern science is broad and often innovative.



This course focuses on giving you **an intuitive understanding** of how topological theories enable you to capture the core properties of spaces through various **topological invariants** in (co)homology theory, homotopy theory, Morse theory and so on. We will not formally prove how the theories are mathematically established but rather spend more time on showing you **applications of these deep theories in the real world**.

### Textbook:

The book “[Elementary applied topology](#)” by Robert Ghrist will be our main reference, especially in the beginning of the semester. Depending on participants’ interests, other references will be used as well.



### Pre-requisites:

*MATH 2050/4050; MATH 2030 or MATH 2230 or equivalent; **Caution:** the listed prerequisites in the system are incorrect.* Students who are interested in taking the course are **strongly encouraged** to contact the instructor!

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