

Course syllabus for Math 4431

Introduction to Topology

Fall 2017

Course description: This is an introductory course in topology, or the study of shape. We will cover point set topology, topological spaces and metric spaces, continuity and compactness, homotopy and covering spaces.

Text: *Elementary Topology* by O. Ya. Viro, O. A. Ivanov, N. Yu. Netsvetaev, and V. M. Kharlamov. There is a free web version without solutions or proofs at <http://www.pdmi.ras.ru/~olegviro/topoman/eng-book-nopfs.pdf>, and if students prefer to only use this version that is fine.

Time and place: MWF 11:15-12:05. Skiles 169. Webpage via T-square.

Instructor and office hours: Kirsten Graham Wickelgren,
e-mail: kwickelgren3@math.gatech.edu,
office: Skiles 148,
office hours: Monday 12:05-1:05, Tuesday 3-4, or by appointment.

Prerequisites: Math 4317. There are few essential prerequisites for this course, but familiarity with convergence and continuity, as in a formal calculus course, will be assumed. The definition of a group will appear, and some familiarity with groups will help with this, but is not required. Homework and exams will require writing proofs.

Course objectives:

- Topological spaces (product spaces, quotient spaces)
- Sequences
- Continuous functions
- Connected spaces

- Compact spaces
- Fundamental group and covering spaces

Homework, exams, and grading: There will be bi-weekly problem sets, one in-class midterm scheduled for Wednesday October 11, and a final exam. A selection of the problems in the problem sets will be graded. Proofs will be required for the majority of problems. Homework is due in class on the assigned date. Grades will be based 30% on homework, 30% on the midterm, and 40% on the final. You are encouraged to work together on the homework. You are also free to consult any references you wish to complete the homework. Any sources you use or collaborators you consult must be credited in writing on your work, of course. No references are to be consulted during the exams.

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