

MATH 7221: TOPOLOGY 2
FALL 2023

BEN KNUDSEN

Course content. This class covers foundational algebraic topology. Here are some possible topics.

- Homology theory and computations
- Basic homological algebra
- Cell complexes
- Cohomology and the cup product
- Applications (e.g., to fixed point theory)
- Poincaré duality

Prerequisites include basic point-set topology (subspaces, quotients, connectedness, compactness) and algebra.

Course material.

- The primary references are Hatcher's *Algebraic Topology* (<https://pi.math.cornell.edu/~hatcher/AT/AT.pdf>) and Bredon's *Topology and Geometry*.
- Lectures may draw freely from other references.
- Other materials may be posted to the course website.

Coursework and grading.

- Grades will be based on homework (60%) and a take home final exam (40%).
- No late homework without prior permission.
- Collaboration is encouraged on homework (please credit collaborators) and forbidden on exams.
- Homework is to be typeset in Latex and submitted by email.

Other information.

- Class: MWR 4:35–5:40 pm, Kariotis 104
- Office hours: W 2:45–3:45, Lake 460
- Website: knudsen.sites.northeastern.edu/teaching
- My email: b.knudsen@northeastern.edu
- My pronouns: he, him, his
- Title IX: as a faculty member, I'm a *responsible employee*, which means that I'm required to report all allegations of sex or gender-based discrimination to the Title IX Coordinator.