

MATH 527/427: Algebraic Topology I

Instructor: *Alejandro Adem, MATHX 1203*

Description:

This is an introductory GRADUATE course in topology which will familiarize students with basic topics and provide preparation for more advanced courses. Topics include: cell complexes, manifolds, homotopy groups, Euler characteristic, chain complexes, singular homology, cohomology, cup products, Poincaré Duality etc. This course is part of a one year sequence (527-528).

Many areas of modern mathematics require knowledge of topological methods—for example homotopy theory, differential topology play an important role across several subjects. This course aims to provide topological expertise for students with diverse backgrounds and interests.

Problems will be assigned and discussed in class.

Textbooks:

Hatcher: Algebraic Topology

Bredon: Topology and Geometry

Prerequisites:

Math 426 or equivalent is a basic prerequisite for this course. Knowledge of undergraduate algebra and topology will be expected. Good references for this are the texts

J.Munkres: Topology

M.Artin: Algebra