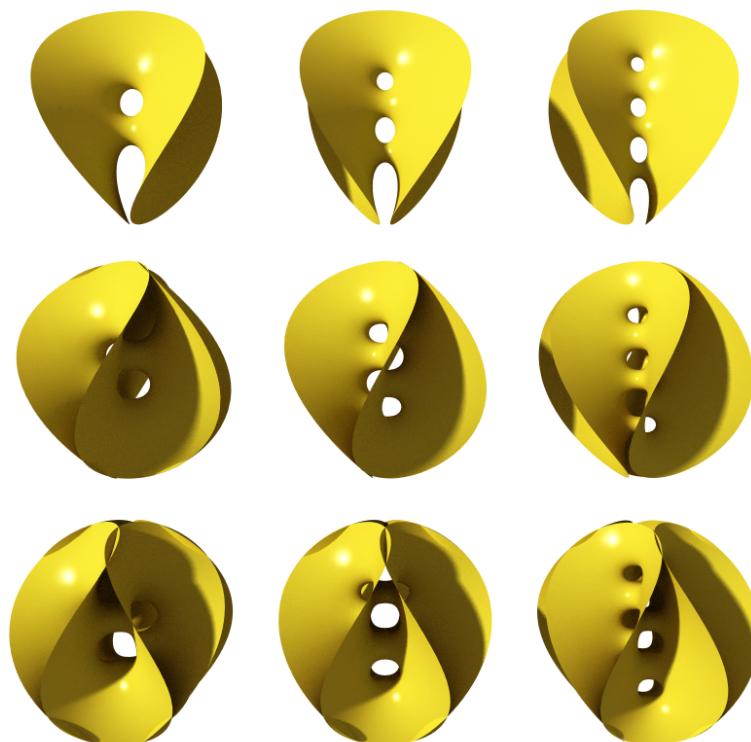


Arizona State University
MAT 501, Fall 2022, TTh 3-4:15
Instructor: Julien Paupert

Geometry and Topology of Manifolds I



Course description: This course is an introduction to algebraic and geometric topology at the graduate level. Topics include the classification of surfaces, cell complexes, topological manifolds, Euler characteristic, fundamental groups, covering spaces and applications to group theory; and time permitting some homology.

The sequence MAT 501-502 prepares students in the Mathematics MA or PhD program for the Qualifying Exam in Geometry and Topology.

Prerequisites: The prerequisites are the same as for admission to the Math PhD program: Advanced Calculus (MAT 371 or equivalent) and Linear Algebra (MAT 342 or equivalent). Some familiarity with groups and topology (connectedness, compactness, quotient spaces) is preferable but not required. References will be given to learn the minimal notions of these topics as needed.

Textbook: The main reference is Algebraic Topology by Allen Hatcher (chapters 0, 1, 2 and Appendix), freely available at: <http://www.math.cornell.edu/~hatcher/AT/ATpage.html>.

Course work: Homework will be assigned every other week, and there will be a midterm and a final exam.