

MAT 840 TOPICS IN TOPOLOGY, SPRING 2010

TOPICS IN LARGE SCALE GEOMETRY AND GROUP THEORY

This course is an introduction to *large scale geometry*. We will start by reading from a survey and a couple of foundational papers on the asymptotic dimension of metric spaces.

As part of the course, I will give an introduction to hyperbolic groups of Gromov, a staple of geometric group theory. We will prove that hyperbolic groups (and, more generally, coarsely hyperbolic spaces) have finite asymptotic dimension, the fact claimed by Gromov 20 years ago but fully proved only recently. If time permits, I will include an introduction to asymptotic cones of metric spaces, a topic of much current research in coarse geometry.

This topic and results are very current. Most of the papers we will be reading were written in the last five years, but the material should be very accessible. The prerequisites for this course are a semester in group theory and one semester of graduate topology.

Time: MWF 12:35 - 1:30pm

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