

Math 8306, Algebraic Topology
Homework 1
Due in-class on **Monday, September 8**

Numbered exercises are from Hatcher's "Algebraic Topology."

1. Suppose X is a CW-complex and $\{x_n\}$ is a sequence of points of X such that no two points lie in the interior of the same cell. Show that the sequence $\{x_n\}$ does not converge. Then use this to show that this sequence cannot be contained in any compact set.
2. Prove that a CW-complex is locally path-connected.
3. Hatcher, Exercise 10 on page 19.
4. Hatcher, Exercise 16 on page 19.