

Block E+: Mondays and Wednesdays, 10:30 - 11:45 AM

Instructor: Genevieve Walsh

Office: Bromfield-Pearson 213

Office Hours (Spring 2007): Tue 10:30 - 11:30 AM, Wed and Fri, 1-2 PM

Phone: (617) 627-4032

Email: genevieve.walsh@tufts.edu

**Prerequisites:** Math 217 or consent of instructor

**Texts:** 1) Allen Hatcher, *Algebraic Topology*, Cambridge University Press, 2002. Also available at: <http://www.math.cornell.edu/~hatcher/AT/ATpage.html>

2) Benson Farb and Dan Margalit, *A Primer on Mapping Class Groups*, 2007. Available at: <http://www.math.utah.edu/~margalit/primer/>

3) William Thurston, *Three-Dimensional Geometry and Topology*, Princeton University Press, 1997. (optional but recommended)

**Description:**

The first part of this course will consist of the first half of Allen Hatcher's book on Algebraic topology. This will cover the fundamental group and covering space theory, and homology. Throughout the course examples (mainly 2,3 and 4-dimensional manifolds) will be emphasized. Everyone's favorite, a circle's worth of donuts, will definitely be included, as well as knot complements in  $S^3$ . The second part of the course will focus on the theory of surfaces, particularly surfaces of genus at least 2. The mapping class group, Teichmüller space, moduli space, and the classification of surface automorphisms will be discussed. As needed we will inject hyperbolic geometry.

Geometry and Topology 217 is sufficient background for this course, but if you are interested in taking this course and have not had 217, please come by and see me.