Math 753, Algebraic Topology II

MWF 10:10-11:00, Room 205

This is a continuation of Math 651. The main topics will be:

— Cohomology, including the universal coefficient theorem, cup products, and Poincaré duality.
— Homotopy Groups, including the Hurewicz theorem, Whitehead's theorem, Eilenberg-MacLane spaces, the Freudenthal suspension theorem, fiber bundles, and fibrations.
— Spectral Sequences, namely the Serre spectral sequence (at the end of the semester, if time permits).

The source for this material will be Chapters 3, 4, and 5 from my algebraic topology book.

<div align="center">Allen Hatcher</div>

Math 751, Seminar in Topology

T~~Th 8:40-9:55, Room 205~~ $MF \ 3:35-4:50 \quad Room \ 22^L$

~~This may change.~~

The plan is for this to be a course on 3-dimensional manifolds, with some applications to knot theory. Traditionally, Math 751 and 752 are the "Berstein Seminar" in which students give the lectures, but this semester I thought I would help out by giving some of the lectures myself, especially at the beginning.

The subject of 3-manifolds has a nice geometric flavor, and one can actually draw pictures showing a lot of what is going on. A fairly clear image of the overall shape of the subject has emerged over the last 25 years, though some important parts of the picture are still conjectural, like the Poincaré Conjecture and Thurston's Hyperbolization Conjecture. A minimal goal for the course would be to understand this overall picture.

Prerequisites for the course are some acquaintance with algebraic topology, as in 651, together with some basic manifold theory, as in 652. The strong visual aspect of the subject of 3-manifolds can sometimes substitute for a detailed understanding of general differential topology.

<div align="center">Allen Hatcher</div>