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## Course goals:

We will explore the geometry of smooth manifolds. After a brief introduction to affine geometry, on which differential geometry is based, we treat some background topics: flows and vector fields, distributions and the Frobenius theorem, and basic Lie groups. Then we develop the geometry of curves and surfaces in Euclidean space. At this point we turn to the general theory of bundles, connections, and curvature. We prove the Chern-Gauss-Bonnet theorem. Finally, we develop the theory of Riemannian manifolds.

## Course format:

This is a lecture course. There will be problem sets as well. I will provide lecture notes.

## Prerequisites:

I assume facility with smooth manifolds and calculus on smooth manifolds, as covered in a first course. Notes in the "Readings" section cover this material (and much more).