Geometry 1 (G122)

(Peter Topalov, Fall'07)

Textbook: F. Warner, Foundations of Differential Manifolds and Lie Groups, Springer-Verlag

This is an introductory course in Geometry. The main topics are as follows:

1. Differential manifolds, tangent bundle, tensor bundles;
2. Vector fields, dynamical systems, distributions, Frobenius theorem;
3. Differential forms, Stokes' theorem, de Rham cohomology;
4. Riemannian metrics, geodesics, Riemannian connections, variational principle; [1]
5. Lie groups and Lie algebras. Introduction.

Item 5. will be covered only if time allows.

[1] This item is not covered by the textbook. Additional materials will be supplied.