

Geometry 1, MTH G122.
Fall 2004. Professor Mikhail Shubin.

Textbook:

Foundations of Differentiable Manifolds and Lie groups, by Frank W. Warner. Springer-Verlag New York, Inc., 1983.

Office: 460 Lake Hall. **Phone:** (617)373-5676 **E-mail:** shubin@neu.edu

Homework assignment no. 1
(due September 16)

1. Prove that the stereographic projections of the unit sphere S^d from the North and South poles to the equatorial hyperplane define a structure of differentiable manifold on S^d . Write down all the details.
2. Introduce a natural structure of differentiable manifold on the torus $\mathbf{T}^n = \mathbb{R}^n / \mathbb{Z}^n$ with all necessary explanations.