Mathematics 425/525, Term I, 2015

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TOPICS: Manifolds, smooth structures, tangent and cotangent spaces, vector fields, immersion and embedding, submanifolds, Sard theorem, Frobenius theorem, tensors and differential forms, vector bundles, orientation of manifolds, integration on manifolds, and if we have time, we will give a brief introduction to Lie groups.

TEXT: Introduction to Smooth Manifolds, John M. Lee, Springer edition, 2nd Ed.

Reference:
  (1) Foundations of Differentiable manifolds and Lie groups, by F.W. Warner, Springer edition
  (2) Lectures on Differential Geometry, by S.S. Chern, World Scientific

GRADE: There will be bi-weekly homework assignments.