MTH 868: Geometry and Topology I

http://www.math.msu.edu/~xwang/MTH868.htm

Lecture: A334 Wells Hall, MWF 9:10 AM-10:00 AM.
Instructor: Xiaodong Wang

- Office: Wells Hall D202
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- Office Hours: TTh 2:00PM-3:30PM.

Course description: This course is an introduction to smooth manifolds. We begin with the definition, properties and examples of manifolds, tangent and cotangent bundles and tensor bundles. We will then study vector fields, differential forms, integration on manifolds, Riemannian metrics and vector bundles.

Text: John M. Lee, *Introduction to smooth manifolds*, 2nd edition, Springer 2012.

There are many books on smooth manifolds. The following are several other commonly used references which you may find helpful:

- M. Berger et al, *Differential Geometry: Manifolds, Curves, and Surfaces*, Springer.
- F. Warner, *Foundations of Differentiable manifolds and Lie groups*, Springer (GTM 94)
- M. Spivak, *A comprehensive Introduction to differential geometry*, Vol.1.
- L. W. Tu, *An introduction to manifolds*, 2nd edition, Springer.

Homework and Exam: Homework will be assigned regularly in class and collected weekly. There will be a two-hour final exam (time and date to be announced).
Grading: homework (60%), final exam (40%).