

**MATH 7350 – Geometry of Manifolds – Spring 2012
Syllabus**

Instructor: Dr. Gordon Heier

Contact Information:

Office: 666 PGH

Office Hours: T 3pm-3:50pm, Th 5:30pm-6:20pm, or by appointment

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Lecture: TTh 4pm - 5:30pm in AH 104

Prerequisites: Math 6342 or a good knowledge of basic topology, abstract linear algebra and advanced multivariable calculus, as surveyed in the Appendix of the textbook.

Exams: Midterm Exam: April 3, in-class, i.e., usual classroom, usual time
Final Exam: May 7, 2pm-5pm, PGH 646
No notes, books etc. will be allowed during both exams. Paper will be provided.
Just bring a pen.

Text: Introduction to Smooth Manifolds by John M. Lee, ISBN 0-387-95448-1 (for the paperback)

Homework in the form of problem sets will be assigned on a regular basis and will be due as described on each set. Late homework will not be accepted.

Attendance: Attending classes and exams is mandatory for all students. Missing class makes a student liable to missing important information. Substantial documentation is necessary to receive any kind of excuse or make-up privilege.

Grades: The homework and midterm exam will each account for 30 percent of your grade, the final exam for the remaining 40 percent.

Disability: If you think or know that you have a disability that needs special accommodation, please see me at the beginning of the semester so that the proper steps can be taken.

Academic Dishonesty will not be tolerated and dealt with appropriately.

Course Content: This course will cover the geometry part of the syllabus for the Topology and Geometry preliminary examination. The course in topology is not a prerequisite for this course, i.e., it can be taken before or after this course.

Topics likely to be discussed will include: manifolds, the inverse and implicit function theorems, submanifolds, partitions of unity, tangent bundles, vector fields, vector bundles, differential forms, tensors and tensor fields on manifolds, exterior algebra, orientation, integration on manifolds, Stokes' theorem, Lie groups. A few additional topics might also be covered, depending on time and audience interest.