Department of Mathematics
University of Houston

MATH 7350 – Geometry of Manifolds – Spring 2016
Syllabus

Instructor: Dr. Gordon Heier
Contact Information:
Office: 666 PGH
Office Hours: M 4:30pm-5:20pm, or by appointment
Email: heier@math.uh.edu
Web: www.math.uh.edu/~heier and www.math.uh.edu/~heier/teaching.html

Lecture: MW 5:30pm-7pm in AH 301

Prerequisites: Formal prerequisites are: Graduate Standing, or MATH 3431 and MATH 3333, or consent of instructor. From a mathematical point of view, this course could be taken by anybody with a good knowledge of basic topology, abstract linear algebra and advanced multivariable calculus, as surveyed in the Appendix of the textbook.

Exams: Midterm Exam: Wednesday, April 6, in-class (subject to change)
Final Exam: Friday, May 6, 5pm-8pm in AH 301 (subject to change)
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 will account for 20 percent of your grade; the midterm exam will account for 30 percent of your grade; the final exam for the remaining 50 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.