

Course Title: Differentiable Manifolds
Course Number: MATH 6510 - 1
Instructor: Andrejs Treiberis
Home Page: <http://www.math.utah.edu/~treiberis/M6510.html>
Place & Time: M, W, F, 10:45 - 11:35 in JTB 120
Office Hours: 11:45-12:45 M, W, F, in LCB 224 (tent.)
E-mail: treiberis@math.utah.edu
Prerequisites: Prerequisites: "C" or better in MATH 4510 AND MATH 5520 or consent of instructor.
Main Texts: Math 6510 Notes by Kevin Wortman
<http://www.math.utah.edu/~wortman/6510.pdf>
Introduction to Smooth Manifolds, 2nd. ed., by John M. Lee, Springer, 2013.
Additional Texts: [List of supplementary materials used in the course.](#)

In this first semester of a year long graduate course in topology, we shall focus on differentiable manifolds. The second semester, Math 6520 taught by M. Bestvina, will homotopy and homology theory. In this course, along with the Math 6520, we shall try to cover the syllabus for the qualifying exam in topology. Although some mathematical sophistication is required to take the course, and it moves at the blazing speed of a graduate course, I shall provide any background materials needed by the class. We shall follow Wortman's notes and Jack Lee's text. We shall discuss as many applications as we can.

Home Pages of Previous Math 6510's

[Math 6510 - 1 Fall 2018](#)

Expected Learning Outcomes

At the end of the course the student is expected to master the theorems, methods and applications of the following topics:

- Manifolds
- Tangent spaces
- Orientation
- Whitney's embedding theorem
- Transversality
- Sard's theorem
- Partitions of unity
- Tubular neighborhoods
- Fiber bundles
- Degree theory
- Vector fields
- Flows
- Lie derivatives
- Frobenius' integrability theorem
- Differential forms
- DeRham cohomology.

Grading

The success of the student will be measured by graded daily homework. A student who earns 50% of the homework points will receive an A for the course. In addition, the student's performance will be reported to the Graduate Committee, which decides the continuation of financial support annually. Ultimately, the learning will also be measured by the Topology Qualifying Examination.

ADA

The University of Utah seeks to provide equal access to its programs, services and activities for

people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternate format with prior notification to the Center for Disability Services (www.hr.utah.edu/oeo/ada/guide/faculty/)

Faculty and Student Responsibilities

All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to the Faculty Rules and Regulations, it is faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. Faculty must strive in the classroom to maintain a climate conducive to thinking and learning (PPM 6-316). Students have a right to support and assistance from the University in maintaining a climate conducive to thinking and learning (PPM 6-400).

Student Safety

The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

Note

The syllabus is not a binding legal contract. It may be modified by the instructor when the student is given reasonable notice of the modification. Last updated: 8 - 8 - 19