Topology of Manifolds
MATH 8210
Fall 2018

MWF 10:10 - 11
Boyd 326

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Boyd 630

Course Objectives

Basics of smooth manifolds, de Rham cohomology, comparison to ordinary cohomology, vector bundles.

Course website

http://www.adamsaltz.com/topologyManifolds (I'll make it prettier.)

Textbooks

This course will roughly follow Bott and Tu's *Differential Forms in Algebraic Topology*. But all the exercises will be posted in full on the course site. Other books I'll be looking at:

- Lee, *Introduction to Smooth Manifolds*. (A very complete introduction, but sometimes a sleep aid.)
- Madsen and Tornehave, *From Calculus to Cohomology.*
- Milnor, *Topology from the Differential Viewpoint*. (Very terse.)
- Guilleman and Pollack, *Differential Topology*. (A classic. Focuses on the idea of transversality.)
- Hatcher, *Algebraic Topology*. (No smooth topology but excellent reference for cohomology.)
- Hatcher, *Vector bundles*.
- Milnor and Stasheff, *Characteristic Classes*. (Great for a second class in the subject.)

I've heard good things about Warner's *Foundations of Differentiable Manifolds and Lie Groups* but I don't have any experience with it.

Prerequisites

I expect that you know algebra and topology at the level 8200. (But I expect that you've probably forgotten some things.)

Students with disabilities

It is important to me that students with disabilities are able to fully participate in this class. If you plan to request accommodations for a disability, please register with the Disability Resource Center. They can be reached by visiting the Business Services Annex, calling 706-542-8719 (voice) or 706-542-8778 (TTY), or by visiting http://drc.uga.edu.

Homework

I will assign homework problems every few weeks. The difficulty of homework problems will vary a lot, e.g. I will ask you to verify some straightforward claim from class. Your grade will be based on your homework performance.

Participation and attendance

This is a small class, and you will learn more if you engage with the material and ask questions during lectures. I expect that you attend class regularly.

Integrity and the Honor Code

I encourage you to work together on homework assignments. You will learn more math and have more fun by talking about problems. If you have a question about what is and isn't honest, please ask me.

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "'A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at: `https://ovpi.uga.edu/academic-honesty/academic-honesty-policy`. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

In short, don't cheat and don't be a jerk.

Basic needs

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. Furthermore, please notify me if you are comfortable in doing so. This will enable me to provide any resources that she may possess.

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.