Course Syllabus

CSU Math 570: Topology I, Fall 2017

Instructor: Henry Adams
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Office: Weber 125
Lectures: MWF 9:00-9:50am in Weber 202
Textook: *Introduction to Topological Manifolds* by John M. Lee. An electronic copy of this book is freely available to CSU students at this link.
Class Webpage: http://www.math.colostate.edu/~adams/teaching/math570fall2017

Course Overview: We plan to spend the first three weeks of the class on point-set topology (topologies, continuity, quotient spaces, connectedness, compactness). The goal for the rest of the course will be to introduce algebraic topology, while returning to topics from point-set topology as they arise. During the first third of the course, we hope to introduce the very basics of homotopy equivalences, the fundamental group, higher homotopy groups, and category theory. The second third of the course will focus on homology, with simplicial homology before singular homology. In the final third of the course we return to the fundamental group (Seifert-Van Kampen Theorem), covering maps, and other selected topics (some skipped along the way).

Though I hope to cover many of the topics in our textbook, I will cover some of them (such as portions of point-set topology, and the classification of compact surfaces) in a very casual way: I will provide intuition for the main theorems instead of giving complete proofs. Other topics, such as homology, will be emphasized and presented in detail.

Prerequisites: Math 417 (Advanced Calculus I, but really Analysis) or Math 472 (Introduction to Topology)

Requirements: Your final grade will be based on the following components:
25% homework, 20% midterm 1, 20% midterm 2, 35% final exam.

Exams: The dates for the exams (all in-class) are

- Midterm 1, **Friday, September 29** during class,
- Midterm 2, **Friday, November 3** during class, and
- Final exam, **Monday, December 11 from 7:30-9:30am**.

Confirm you can attend these exams before enrolling (or talk to Henry asap if you know you must miss a midterm) — however, Henry reserves the right to adjust the exam time-of-day if the entire class agrees. You will only be able to use your brain and a pen or pencil — no notes, books, or electronic devices. The exams will be comprehensive, except that Midterm 2 will emphasize the material after Midterm 1, and the Final will emphasize the material

after Midterm 2.

Qualifying Exams: The qualifying exam will be our class final.

Homework: The clarity of your solutions will count as much as their correctness, and all steps must be explained. Working in groups on homework and to study is encouraged! However, your submitted homework must be written up individually, in your own words, and without consulting anyone else's written solutions or a solution manual of any form.

Homework is due at the beginning of class. Late homework will not be accepted, though to accommodate illnesses and other unexpected events the lowest homework score will be dropped. It is in your best interest to inform me as soon as reasonably possible when such a situation arises. CSU policies apply for university-sanctioned activities, for which you should give me plenty of advanced notice.

Academic Policies and Integrity: Students are expected to adhere to the CSU Academic Integrity Policy as found on the Students' Responsibilities page of the CSU General Catalog and in the Student Conduct Code. For further policies which apply to all math department classes, please see http://www.math.colostate.edu/programs/undergraduate/policies.shtml.