Math 147: Topology

1. General information

Lectures will be held Monday, Wednesday, and Friday from 1:10-2:00 in Cruess 107.

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Office hours: Mondays and Fridays 2:15-3:15

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Office: MSB 2123
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2. Textbook

The primary textbook (required) for this course is *Introduction to Topology* by **Bert Mendelson**.

The secondary textbook (recommended but not required) for this course is *Topology* by **James Munkres**.

For most of the course, we will follow Mendelson. However, we will rely on Munkres presentation of a basis for a topology (chapter 13) and the separation axioms (chapter 31). The instructor will ensure that resources available on these two topics to students who choose not to purchase a copy of Munkres book. Students are expected to have a copy of the book by Mendelson, and to read the corresponding sections of the text to supplement the lectures.

3. Grades

Grades will be based on homework, two midterms, and a final exam weighted as follows:

30% Homework
20% Midterm 1
20% Midterm 2
30% Final

4. Homework

Homework assignments will typically be due on Wednesdays at the *beginning* of the lecture. Assignments will be posted on the course website, typically one week in advance of the due date.
Homework must be turned in *on time* in order to be graded. Your lowest homework score will be dropped. Students are encouraged to discuss the problems from the homework assignment together, but must write up solutions independently. If two students turn in solutions with identical or nearly identically written solutions, both solutions will receive zero credit.

5. Exams

There will be one mini midterm, one midterm, and one final exam.

Midterm Exam 1: Friday October 26 in class
Midterm Exam 2: Friday November 16 in class
Final Exam: Wednesday, December 12 at 8:00am

There will be no make-up exams. If you require special accommodation in taking the exams, please let me know well in advance of each exam.
No calculators or other electronic devices will be permitted in the exams.

6. Academic Honesty

Cheating and other instances of academic misconduct will be taken very seriously. All students at UC Davis are expected to follow the Code of Academic Conduct. See https://participate.ucdavis.edu/ for further information on participating in keeping UC Davis a fair and honest community and see http://sja.ucdavis.edu/files/cac.pdf for the Code of Academic Conduct. If academic misconduct is admitted or is determined by adjudication to have occurred, the instructor may assign the student a grade of F in the course per Regulation 550.

7. Accommodations

Any student with a documented disability (e.g. physical,learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Student Disability Center (SDC). Faculty are authorized to provide only the accommodations requested by the SDC. If you have any questions, please contact the SDC at 530/752-3184 or sdc@ucdavis.edu.

8. Schedule of topics

The following is a guideline for the topics we will cover in the course and the order in which they will be covered. This schedule and the pacing may be modified during the quarter based on the needs of the class. The numbers in parentheses indicate the relevant section of the textbook by Mendelson (or Munkres when specified).

Sept 26: Review of sets, functions, equivalence relations (1.1-1.7); Distance functions (2.2);
Sept 28: Examples of metric spaces (2.2); Continuity on metric spaces (2.3)
Oct 1: Open sets in metric spaces (2.4,2.6); Continuous functions (2.3)
Oct 3: Limits, closed sets, closure (2.5,2.6); Limit continuity (2.3)
Oct 5: Abstract topological spaces (3.2);
Oct 8: Open and closed sets (3.3,3.4); Basis for a topology (Munkres 13);
Oct 10: More on bases for a topology (Munkres 13); continuity on topological spaces (3.5)
Oct 12: Closure, interior, and boundary on topological spaces (3.4);
Oct 15: Homeomorphisms between topological spaces (3.5);
Oct 17: Subspace topology (3.6)
Oct 19: Product topology (3.7);
Oct 22: Catch up/examples
Oct 24: Review
Oct 26: Midterm 1
Oct 29: Separation axioms (3.3, Munkres 31)
Oct 31: Quotient/Identification topologies (3.8);
Nov 2: More separation axioms/quotient topology
Nov 5: Connectedness (4.2)
Nov 7: Connectedness on the real line (4.3)
Nov 9: Local connectivity (4.5)
Nov 12: Path connectedness (4.6)
Nov 14: Review
Nov 16: Midterm 2
Nov 19: Applications of connectedness (4.4)
Nov 26: Compactness (5.2)
Nov 28: Compactness in the real line (5.3)
Nov 30: Compact metric spaces (5.5)
Dec 3: Products of compact metric spaces (5.4)
Dec 5: Homotopy of paths and the fundamental group (4.7)
Dec 7: Review
Dec 12: Final exam 8:00 am