Math 431/531

Fall 2018

Lecture:	MWF 9:00–9:50, 242 Gerlinger Hall
Instructor:	Nick Addington
Office:	208 Fenton Hall
E-mail:	adding@uoregon.edu
Office Hours:	Tuesdays 2:00–4:00, and by appointment.
Web Page:	http://pages.uoregon.edu/adding/courses/431/

Outline of the sequence. I will cover point-set topology in the fall. Victor Ostrik will cover manifolds in the winter. In the spring, you can choose curves and surfaces (433/533) with Weiyong He, or de Rham cohomology (410/510) with Peng Lu.

Books. There is no required textbook for the fall, but if you want to read one, here are some recommendations:

- Munkres, *Topology.*
  The standard choice.
- Patty, *Foundations of topology.*
  This is the book I used in college.
- Dugundji, *Topology.*
  Terse and old-fashioned, but it has a certain charm.
- Lee, *Topological manifolds.*
  Starts with the essentials of point-set topology before going on to classification of surfaces, and quite a bit of algebraic topology. Rich in examples, like all of Lee's books.

Grading. Your grade will be based on the following:

- **Homework.** On Wednesdays, turn in your homework in class, or submit a PDF through Canvas. You'll be assigned two of your colleagues' homeworks to give feedback on, by Friday. By Monday, you'll submit a revised version of your homework based on your colleagues' feedback.

  I encourage you to work with other students, but you must do the writing yourself, in your own words. Use pencil and double space (skip lines) to leave room for the grader's comments. If you type, use TEX, not Microsoft Word. I will not accept late work, but you may skip one homework for free.

- **Midterms.** Friday, October 19 and Friday, November 9, in class.

- **Final Exam.** Wendesday, December 5, 10:15–12:15, in the usual room.

Graduate students (531) will have additional work: some reading about the history of topology, and a project on the compact-open topology.

Learning outcomes. The successful student will come away understanding connectedness, compactness, and separation properties of topological spaces, both formally (how to use the axioms) and in examples. The student will both acquire and demonstrate this understanding by *writing proofs*. Especially important will be writing in paragraphs, rather than in strings of symbols; keeping in mind the audience for your writing, which is your peers; and "making the easy parts look easy," that is, avoiding belaboring the routine parts of the proof so that the essential content can shine through.