Introduction to Topology (Math 431/531)
Fall 2015

Meeting times:	Mon., Wed., and Fri. 9–9:50am in 251 Straub Hall
Instructor:	Ben Elias
Office:	Fenton 210, x6-5629
Office hours:	M 10-11 and F 3-4.
E-mail:	belias@uoregon.edu
Course website:	http://pages.uoregon.edu/∼belias/431-fall-2015/
Midterm:	Friday October 30. In class, 50 minutes.
Final:	Friday December 11, 10:15AM, 2 hours, in 251 Straub Hall.

Textbook: *A first course in algebraic topology*, by Czes Kosniowski. The first chapter is available online.

Grading and Exams: There will be one midterm and a final exam. The date of the midterm will be decided on in the first week of class. The final exam is worth 40% of your grade, the midterm 20%, and homework 40%.

Graduate students enrolled in MAT531 may also have a take-home component to the midterm and final. This is to be decided.

No calculators or other electronic devices will be permitted on any of the exams. Please bring your UO ID to all exams.

Prerequisite: Math 315 or the instructor's permission.

Homework: There will be homework due each Tuesday by 11AM. They will be assigned by the previous Monday (first homework due T 10/6). Check the course website each week, where the problems will be posted. Late homework will not be accepted without *prior* permission. Homework may be turned in at my mailbox in Fenton Hall, outside my office.

Graduate students in MAT531 are required to LaTeX their homework. Undergraduates in 431 are encouraged to do so as well.

Learning Outcomes: The goal of this course is to introduce what is commonly called *point-set topology*. **This section will be updated once I have access to the textbook!** Specific goals are to understand and be able to use the following concepts.

(1) Metric spaces and their topology.
(2) Topological spaces. Open and closed sets. Limits, interiors, and closures. Coarsenings and refinements of topologies.
(3) Continuous functions, homeomorphisms.
(4) Product topologies. Quotient topologies. Constructing spaces by gluing.
(5) Connectedness, path-connectedness, and local versions of these ideas. Cut points.
(6) Compactness. One point compactifications.
(7) Separation axioms. Hausdorff.

(8) Homotopic maps.

Learning Environment: The University of Oregon strives for inclusive learning environments. Please notify me if the instruction or design of this course results in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center in 164 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu. If you are entitled to extra time on exams, make sure to contact the AEC more than one week prior to the exam!

Academic Conduct: The code of student conduct and community standards is at:

http://conduct.uoregon.edu

It is not appropriate to help each other on exams, to look at other students exams, or to bring unauthorized material to exams. Any type of academic dishonesty will not be tolerated.

In this course, you are encouraged to work on the homework problems with your colleagues. Math is a collaborative activity, and one which is easier to learn as a team. However, when it comes time to write up your homework answers, this should be done individually, without reference to any common solution or the work of others. By writing it up individually, you can really isolate those things you thought you understood in the group, but which did not make sense later. For example:

Ok: a study group works a problem on the blackboard, gets the answer. Erases the answer, each member tries to write up the solution individually, asks questions of the group when something goes wrong.

Not ok: a study group works a problem on the blackboard, gets the answer. Members copy the answer from the board to their homework sheet, or write up the solution while referencing the solution on the board. This is cheating, even if credit is given to your collaborators (otherwise it is also plagiarism).

Definitely not ok: looking up answers to a problem online, even if one does not copy them.

There will be no collaboration on the take-home portions of any exam.

Attendance and Participation: If you miss a class, it is your responsibility to find out what happened in this class from your colleagues. Not all class material is in the book (nor is all material in the lecture either - homeworks are essential). If your grade is borderline between one grade and another, then attendance and participation will be taken into account.

OFFICE HOURS ARE A VASTLY UNDERUSED RESOURCE. I am stuck in my office, waiting to answer your questions, so please use the opportunity!

Please, do not hesitate to ask questions, either in class or in office hours. Chances are that if you are confused, so are many of your colleagues, and they will thank you for speaking up. Office hours should be very helpful. I will create a google group for class announcements, which can also be used for communication between classmates. I do not plan to answer any mathematical questions by email - email will be used for administrative business. Mathematical questions are best asked to your classmates: it helps everyone learn! If you can't make office hours, email me to set up an appointment.