Math 871 Topology I

Section 006: TuTh 2:00 - 3:15   Burnett(Burn) 119

Instructor: Mark Brittenham
Office: Avery Hall (AvH) 317
Telephone: (47)2-7222
E-mail: mbrittenham2@math.unl.edu
WWW: http://www.math.unl.edu/∼mbrittenham2/
WWW pages for this class: http://www.math.unl.edu/∼mbrittenham2/classwk/871f14/

(There you will find copies of nearly every handout from class, lists of homework problems assigned, dates and review sheets for exams, etc.)

Office Hours: To be determined. I'm also available whenever you can find me in my office and I'm not horrendously busy. You are also quite welcome to make an appointment for any other time; this is easiest to arrange just before or after class, or via email.

Prerequisite: Math 325 (analysis) or Math 417 (algebra), or equivalent, or permission of instructor.

Texts: *Topology*, by James Munkres (2nd edition, Prentice Hall), and

Algebraic Topology, by Allen Hatcher (Cambridge University Press).

Algebraic Topology is also available in electronic form, from author's website,
http://www.math.cornell.edu/∼hatcher/AT/ATpage.html .

This course, as the name is intended to imply, is about topology. More precisely, it is intended to provide you with in introduction to the basic concepts, techniques, and goals of topology. At minimum, we will work through chapters 2 through 4 and chapter 9 of *Topology*, followed by the initial parts of *Algebraic Topology*. [The follow-on course Math 872 will continue in *Algebraic Topology*.] In particular, we will cover basic definitions and examples of topological spaces and continuous functions, properties of topological spaces (connectedness, compactness, separation axioms, separability (which, surprisingly, is something completely different), deforming one space into another (homotopy), and applications.

Problem sets will be assigned (approximately) each week. It is an essential ingredient to the course - as with almost all of mathematics, we learn best by doing (again and again and ...). A subset of each problem set will be collected and graded. Cooperation with other students on these assignments is acceptable, and even encouraged. You should, however, work at least half of the problems chosen for collection without consulting other students. This will help to make sure you are understanding the process of finding the solution on your own - after all, you get to bring only one brain to exams (and it can't be someone else's). These problem sets will account for 50 % of your final grade.

In addition to the problem sets, two **exams** will be given during the semester, **in the evening, outside of normal class time**, on dates which will be determined in consultation with the class. You can take a make-up exam only if there are compelling reasons (a doctor SAYS you were sick, jury duty, etc.) for you to miss an exam. Make-up exams tend to be harder than the originals (because make-up exams are harder to write!). Each exam will account for 25 % of your final grade.

Because nearly all of the students in this class are involved with the teaching of one of the mathematics department's 100-level courses, which hold their common final exams on Monday, December 15, and which hold their last midterm exam during the (Tuesday and Wednesday of the) 14th week of class, some care seems in order over the timing of the second of these exams. We will discuss possible options during the first week of class.

Your course grade will be based upon these two components, and will be converted to a letter grade, taking into account the overall average of the class. However, a score of 90% or better will guarantee some kind of **A**, 80% or better at least some sort of **B**, 70% or better at least a flavor of **C**, and 60% or better at least a **D**.

In mathematics, new concepts continually rely upon the mastery of old ones; it is therefore essential that you thoroughly understand each new topic before moving on. Our classes are an important opportunity for you to ask questions; to make <u>sure</u> that you are understanding concepts correctly. Speak up! It's <u>your</u> education at stake. Make every effort to resist the temptation to put off work, and to fall behind. Every topic has to be gotten through, not around. And it's a lot easier to read 50 pages in a week than it is in a day. Try to do some mathematics every single day. **Class attendance** and **doing the homework** are your best methods for insuring that you will keep up with the material, and to make sure that you understand all of the concepts.

Departmental Grading Appeals Policy: The Department of Mathematics does not tolerate discrimination or harassment on the basis of race, gender, religion, or sexual orientation. If you believe you have been subject to such discrimination or harassment, in this or any other math course, please contact the department. If, for this or any other reason, you believe your grade was assigned incorrectly or capriciously, then appeals may be made (in order) to the instructor, the department chair, the department grading appeals committee, the college grading appeals committee, and the university grading appeals committee.

ADA Notice: Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office [www.unl.edu], 132 Canfield Administration, 472-3787 voice or TTY.

Course Evaluation: The Department of Mathematics Course Evaluation Form will be available through your Blackboard account during the last two weeks of class. You will get an email when the form becomes available. Evaluations are anonymous and instructors do not see any of the responses until after final grades have been submitted. Evaluations are important—the department uses evaluations to improve instruction. Please complete the evaluation and take the time to do so thoughtfully.

Some important academic dates

Aug. 5	First day of classes.
Sept. 1	Labor Day - no classes.
Sept. 5	Last day to withdraw from a course without a **'W'**.
Oct. 17	Last day to change to or from P/NP grade.
Oct. 20-21	Fall break - no classes.
Nov. 14	Last day to withdraw from a course.
Nov. 26	Student holiday - no classes.
Nov. 27-30	Thanksgiving Vacation - no classes.
Dec. 13	Last day of classes.
Dec. 15-19	Final exam week.
Dec. 18	Scheduled time for Math 871 final exam.