

MTG 6346: Topology I
University of Florida, Department of Mathematics
Course Syllabus, Fall 2015

Instructor: Peter Bubenik

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Office: Little Hall 410, Office hours: MW 7th period

Class meetings: MWF 8th period (3:00–3:50pm), Little Hall 217

Prerequisite: MTG 5317.

Textbook. Allen Hatcher. Algebraic Topology. Cambridge University Press, 2002. ISBN 0-521-79540-0. <http://www.math.cornell.edu/~hatcher/AT/ATpage.html>

Final exam. Thurs Dec 17, 5:30–7:30pm, Little Hall 217

Tentative test dates. Fri Sept 25, Fri Oct 30, in class

Course description. This course is an introduction to algebraic topology. We will study homotopy, the fundamental group, simplicial homology, singular homology, cellular homology, and applications of all of the above. Some of the main tools include Van Kampen's Theorem, covering spaces, and the Mayer-Vietoris sequence.

Course Objectives. To understand the basic concepts in algebraic topology and be able to apply them in calculations and proofs. To understand and formulate mathematical arguments and to apply them in proofs. To be able to discuss mathematics. To be able to communicate mathematics in writing.

Course schedule.

Weeks 1–2	Some Underlying Geometric Notions
Weeks 2–4	The Fundamental Group
Weeks 4–5	Van Kampen's Theorem
Weeks 6–7	Covering Spaces
Week 8	Graphs, Groups, $K(G,1)$ (time permitting)
Weeks 9–12	Simplicial and Singular Homology
Weeks 13–15	Computations and Applications
Weeks 15–16	The Formal Viewpoint

Course work and assessment. The grading for the course will be based on two midterm tests, each worth 25%, and one cumulative final, worth 50%.

A: 100% – 93%, A-: 92% – 90%, B+: 89% – 86%, B: 85% – 83%, B-: 82% – 80%, C+: 79% – 75%, C: 74% – 70%, D+: 69% – 67%, D: 66% – 64%, D-: 63% – 60%, E: 59% – 0%.

Homework. The best way to learn mathematics is to do mathematics. The textbook contains many good exercises and I will regularly assign a selection of these. You are encouraged to discuss the exercises with your classmates, but you must write up your own solutions. Copying solutions or allowing your solutions to be copied is considered cheating. If you are unable to do any of the homework ask me for help as soon as possible. Solutions to some of the homework problems can be found on the web. Do not use these! It is considered cheating and you are depriving yourself of the crucial opportunity to learn by struggling with these problems.

Students may receive up to 10 points of extra credit for presenting their homework solutions in class. We will work together to fix up any arguments that are incorrect or unclear.

Tips for success:

- Before each lecture, read your notes from the previous lecture and read ahead using the textbook.
- We can spend time at the start of class looking at the assigned problems. Come to class with your questions ready.
- Ask questions during class! If something is confusing, you aren't the only who would like it to be clarified.
- Discuss the homework with your classmates.

Attendance and Participation. It is expected that you attend class regularly and participate by asking and answering questions.

Policy for Make-up Exams. If you know ahead of time that you will be unable to attend a exam, it is your responsibility to let me know as possible. If you miss an exam due to an emergency, you must contact me as as possible to make arrangements for a make-up exam.

Requirements for class attendance and make-up exams in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Class Demeanor. Students are expected to arrive to class on time and behave in a manner that is respectful to the instructor and to fellow students. Please avoid the use of cell phones and restrict eating to outside of the classroom. Other students should be respected in discussion.

Course evaluation. Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

Disabilities statement. Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Academic honesty. UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code.” On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

Grade points. For current UF grading policies for assigning grade points see <http://gradcatalog.ufl.edu/content.php?catoid=8&navoid=1493&hl=grade+points&returnto=search#grades>.

Other contact info. Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.