

Syllabus for MATH 780, Algebraic Topology I, Spring 2006

Instructor: Ismar Volic
Meeting times: MW 2:00 – 3:15, in Kerchof 317
Office hours: T 1 – 2, and by appointment, in Kerchof 327
Tel: 924-4948
Email: ismar@virginia.edu
URL: https://toolkit.itc.virginia.edu:443/cgi-local/tk/UVa_CLAS_2006_Spring_MATH780-1

Please check this page often. It will contain various important announcements and information about the course that you will be responsible for. You can also join discussion groups, provide feedback about the course, etc.

Text: The required book is *Algebraic Topology*, by Allen Hatcher, Cambridge University Press, 2002, also available for free at <http://www.math.cornell.edu/~hatcher/AT/ATpage.html>. A good point-set topology reference is *Topology*, by J. R. Munkres (not required).

Prerequisites: MATH 557 General Topology and some basics of group and ring theory.

Intended audience: First-year graduate students and advanced undergraduates who have had a point-set topology course. After finishing this course, graduate students should be able to complete the General Examination in Topology.

Course material: I plan to cover essentially all of Chapters 0-2 in Hatcher's book. These cover fundamental group, covering spaces, and homology, which are all basic tools for studying and distinguishing topological spaces and maps between them. They also bring together geometry and algebra in intricate and beautiful ways. Chapters 0 and 1, covering the fundamental group, Van Kampen's Theorem, covering spaces, deck transformations, etc., will take us about half the semester. The other half will be devoted to Chapter 2 on homology. I may take the category theory approach to homology a little earlier and in more detail than Hatcher does (see section 2.3), but if I do, I will give you the references to accompany this material.

Homework and exams: Homework will be assigned regularly and collected every Wednesday. I may not grade every problem but will try to post solutions to all of them. There will be a take-home final exam. The grade distribution is: 60% homework, 40% final.

Some important dates:

Wednesday, January 18	First day of class
Wednesday, February 1	Last day to drop
Friday, February 3	Last day to add
Monday, March 6 – Friday, March 10	No classes (spring break)
Wednesday, March 15	Last day to withdraw
Monday, May 1	Last class, take-home final handed out