Math 731 – Algebraic Topology
Fall 2017

Lecture HH 410; Tu, Fri 9:30 – 11:00

Instructor Dr. Matthias Nagel

> **Office hours** HH 414; Tuesdays 11:15 – 12:15
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Objective In this course, we become familiar with the basic notions and constructions of algebraic topology. We learn to use algebraic invariants to distinguish topological spaces, and how to compute them by assembling a space from simpler pieces. Along the way, we become more comfortable with the manipulation of (infinite) groups and chain complexes.

Syllabus

- topological spaces, CW complexes, homotopy equivalence
- fundamental groups, covering spaces
- homology

Textbooks

- Algebraic Topology by A. Hatcher, freely available under
  http://www.math.cornell.edu/~hatcher/AT/ATpage.html
- Topology by J. Munkres
- Basic Concepts of Algebraic Topology by F. Croom
- A Concise Course in Algebraic Topology by P. May, freely available under
  http://www.math.uchicago.edu/~may/CONCISE/ConciseRevised.pdf

Grading Scheme Your course mark is obtained by the formula:

$$20\% \text{ Attendance} + 40\% \text{ Homework} + 40\% \text{ Final Exam}$$

Homework The assignments are to be handed-in in class. As a rule, there will be assignments every other week and late homework will *not* be accepted.

Attendance To receive full marks attendance of 2/3 of the lectures is required.

Academic Integrity You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: Grade of F assigned for academic dishonesty), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at www.mcmaster.ca/academicintegrity. The following illustrates only three forms of academic dishonesty:

- Plagiarism, e.g. the submission of work that is not ones own or for which other credit has been obtained.
- Improper collaboration in group work.
- Copying or using unauthorized aids in tests and examinations.

Academic Accommodation Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca. For further information, consult McMaster Universitys Policy for Academic Accommodation of Students with Disabilities.

Alterations Modifications to the course outline might take place as the course progresses.