

## Math 753: Graduate Algebraic Topology Spring 2019

**Instructor:** Prof. Patricia Hersh  
plhersh@ncsu.edu, 515-2385  
Office: 3226 SAS Hall  
Office Hours: TBD

**Class Meeting Time and Location:** TuTh 11:45am–1pm, SAS 1218

**Text:** Algebraic Topology, by Allen Hatcher

**Prerequisites:** MA 551

**Course Topics:** Fundamental group and homotopy groups, categories and functors, covering spaces, singular homology, simplicial homology, exact sequences and excision, cellular homology, Mayer-Vietoris sequence, cohomology of spaces, cup product and cohomology ring structure, chain complexes, Poincaré duality, Künneth formula, homological algebra, and related topics, as time permits. Examples and calculations will be emphasized throughout the semester.

**Course Schedule:** Chapter 1 (2-3 weeks); Chapter 2.1 (3-4 weeks); Chapter 2.2 (2-3 weeks); Chapter 2.3 (2 weeks); Chapter 3 (3 weeks)

**Homework:** There will be recommended problems, some of which will be collected.

**Grading:** Course grades will be determined by homework (10 percent), two midterm exams (25 percent each), and the final exam (40 percent). Strong class participation may positively increase your grade by  $1/3$  of a letter grade.

**Class Participation:** Please do not hesitate to ask questions in class. It helps everyone!

**Statement for students with disabilities:** “Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Services Office at Suite 2221, Student Health Center, Campus Box 7509, 919-515-7653. For more information on NC State’s policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.01)”

**Further university policies:** “Students are responsible for reviewing the NC State University PRR’s which pertains to their course rights and responsibilities:”

Equal Opportunity and Non-Discrimination Policy Statement <https://policies.ncsu.edu/policy/pol-04-25-05>

Additional references at <https://oied.ncsu.edu/equity/policies/>

Code of Student Conduct <https://policies.ncsu.edu/policy/pol-11-35-01>

Grades and Grade Point Average <https://policies.ncsu.edu/regulation/reg-02-50-03>

Credit-Only Courses <https://policies.ncsu.edu/regulation/reg-02-20-15>

Audits <https://policies.ncsu.edu/regulation/reg-02-20-04>