

MATH 663—ALGEBRAIC TOPOLOGY—FALL 2023-A. FREIRE

Tu+Th, 12:55 to 2:10, Mossman 204 (in person)

Office hours: Th 5:30—6:30 (Ayres 325), or by appointment (email)

1. Goal: Singular homology and cohomology (cellular homology, simplicial homology), de Rham cohomology, duality on manifolds. Intended both for students interested in research in Topology or Differential Geometry and for students in other areas who want to learn the foundations of the subject.
2. Prerequisites: Math 561-562 (general topology, manifolds, fundamental group), or equivalent.

3. References:

J. W. Vick, *Homology Theory: An Introduction to Algebraic Topology*, 2nd ed. Springer GTM, no 145 (1994)-MAIN TEXT

W.S. Massey, *Singular Homology Theory*. Springer, GTM no. 70 (1980)

R. Bott, L.Tu, *Differential Forms in Algebraic Topology*. Springer, GTM no. 82 (1982)

P.J. Hilton, J. Wylie: *Homology Theory, An Introduction to Algebraic Topology*. Cambridge UP (1960)

A.Hatcher, *Algebraic Topology*.

4. For the material discussed in a given lecture, plans for upcoming lectures and problem sets, please consult the “course log” on this web page. Canvas will not be the primary means of communication.
5. GRADING: attendance, participation in lecture and careful reading of the texts are expected. The course grade will be based on WRITTEN student presentations to the class (of an important problem/example, or a topic in the course.) One presentation per student (3-4 pages in LaTeX, for posting.)