

Instructor: Dr. Laura Rider
Office: 633 Boyd
Email: laurajoy@uga.edu
Course Webpage: <https://faculty.franklin.uga.edu/laurajoy/homoalgS2019>
Meetings: 12:20 - 1:10 MWF in 410 Boyd

Approximate Course Outline

- (3 weeks) Abelian categories; chain complexes; derived functors
- (3 weeks) Tor and Ext; homological dimension
- (4 weeks) Derived categories; triangulated categories; spectral sequences
- (3 weeks) Group cohomology; Hochschild homology
- (2 weeks) Sheaf cohomology; Simplicial methods; further topics

Homework Problem sets will be due approximately every two to three weeks. Each problem set will consist of about 3-5 problems. The letter grade will be based on the number of problem sets submitted with substantial work. Substantial work on at least 80% of the problem sets will earn you an 'A'. Under normal circumstances, I expect everyone to earn an 'A'. If you feel that you are getting behind, please see me as soon as possible.

References

Primary Reference: C. Weibel, *An introduction to homological algebra*, Cambridge in Advanced Mathematics, no. 38, Cambridge University Press, Cambridge, 1994.

Supplementary Reference: S.I. Gelfand and Yu.I. Manin, *Methods of homological algebra*, 2nd ed., Springer Monographs in Mathematics, Springer-Verlag, Berlin, 2003.

Academic Honesty *As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, A Culture of Honesty, and the Student Honor Code. All academic work must meet the standards described in A Culture of Honesty found at: <https://ovpi.uga.edu/academic-honesty/academic-honesty-policy>. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.*

Disclaimer The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.