

Course Information

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Textbook. For most of the semester, we will work from the following book:

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

At various points, we may supplement this with topics from other sources, especially

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

Course outline. A rough schedule of topics for the semester is as follows.

Abelian categories; chain complexes; derived functors	3 weeks
Tor and Ext; homological dimension	2 weeks
Derived categories; triangulated categories; spectral sequences	3 weeks
Group cohomology; Hochschild homology	2 weeks
Sheaf cohomology	1 week
Simplicial methods; further topics	remaining time

Homework & Grading. Homework exercises will be due approximately once every week or two. All the homework exercises will be posted on my webpage. I expect substantial efforts on each problem set, but of course, I do not expect perfect solutions to every problem, nor is it likely that every problem will be graded. The grade for the semester will be based on the number of problem sets submitted with substantial work:

- A Substantial work on at least 80% of the problem sets
- B Substantial work on more than half the problem sets, but missing more than 20%
- C Substantial work on at least 20% of the problem sets, but fewer than half
- D Less than 20% of the problem sets submitted
- F No work submitted

Under normal circumstances, I expect everyone to earn an 'A'. If you feel that you are getting behind, please come see me as soon as possible.

Exams. There will be no timed exams. In lieu of a final exam, the last homework assignment will be due at the scheduled time for the final exam: Tuesday, May 6, 12:30pm.