# Math 6690: Homological Algebra

## MWF 10:30 - 11:20, MSCS 405

Instructor: Jeff Mermin
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Course web page: http://www.math.okstate.edu/~mermin/6690/

**Office Hours**  TBA or by appointment.

**Subject matter**  This course is primarily intended to fill in the "gap" between the 2-semester Ph.D. algebra sequence and the algebra comprehensive exam syllabus. We study the algebra of exact sequences of modules, and the properties of some special kinds of modules. It is important to understand that almost all of our results apply in many other settings, and time permitting we'll discuss some of those too.

The secondary intent of the course is for you to practice the skill "learning from a textbook". To that end, you will be responsible for almost all the lecturing, and for asking questions when you have them.

**Textbook**  *An Introduction to Homological Algebra* (Second edition) by Joseph J. Rotman.

**Grading**  Your course grade will be out of 1000 points, assigned as follows:
  1000    Class participation
You will take turns giving class presentations, and I will base your grade primarily on the quality of your presentations. I will also consider your contributions to your classmates' presentations as a lesser (but still important) factor.

While we will have a clear schedule for the presentations, you should prepare for each class as if it is your turn to present. (Rarely, it may become necessary to violate the schedule; I expect everyone to be ready to step in at any time.)

In some cases, you may have honestly grappled with the material and been confused; if so you may (and should!) use your presentation to explain your confusion and ask for help. (Of course, you should generally be far enough ahead in the reading to seek help either in office hours or from classmates.)

More often, you may find yourself confused by material a classmate is presenting; in this case you should be unafraid to slow them down enough to resolve your questions.

**Illness policy**  If you cannot attend a regular class due to illness or another emergency, no documentation is necessary. If you aren't sure whether or not you're too ill to attend class, please see a doctor. If you become ill and need to miss class If you need to miss *several* classes, let me know as soon as possible, so that I may plan how to accommodate the situation.

**Academic integrity**   Don't cheat, or help other students cheat. Don't violate academic integrity in any other way, either. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, and fraudulently altering academic records) will result in your being sanctioned according to the OSU academic integrity process. If you have further questions, contact the Office of Academic Affairs, 101 Whitehurst, 405-744-5627, http://academicintegrity.okstate.edu.

**Syllabus Attachment**   The OSU syllabus attachment is on the web at

http://academicaffairs.okstate.edu/images/Patty/FacultyandStaffResources/Syllabus/spring 2015 syllabus.pdf

This has a lot of important information, including instructions about disability accomodations. Please contact me privately during the first week of the course if you need accommodations as the result of a disability.

If circumstances arise which are not addressed here, I reserve the right to fall back on the policies outlined in Y. Kachi's syllabi at the University of Kansas (see, for example, http://www.math.ku.edu/~kachi/alg11s-791-sy1.pdf).