

**Mathematics 8202, Spring 2009**  
**Algebra**

Lectures: MWF 9:05-9:55

Text: J.J. Rotman, Advanced Modern Algebra, Prentice Hall 2002, ISBN 0130878685.

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Office hours: MWF 1:25 - 2:15 or by appointment

**1. Course Assessment.** Your grade will be determined by your performance on homework, quizzes given in class and a final exam. I will take in homework from you each Monday, starting on 2/2/09. Homework may be given to me during class, and I will also accept it if you put it in my mailbox before 2:30pm on Monday. There will be about twelve sets of homework altogether during the semester. Every other Monday there will be a 30 min. quiz in class on the subject matter of the homework due that day and on the previous Monday. There will be 6 quizzes altogether, on 2/9/09, 2/23/09, 3/9/09, 3/30/09, 4/13/09 and 4/27/09. We will finish with a final exam on all the topics covered, which will probably be an optional take-home exam in the same manner as last semester – we will discuss this. Each quiz will count 6%, the homeworks will count 48%, and the final exam will count 16%. **We will discuss whether the class wishes the final exam to count more, and if so these percentages may change.** There will be no make-up quizzes. If you miss a quiz and explain to me your genuine reason I will give you a score which is the average of your remaining quizzes. If you do not talk to me about missing a quiz you get 0, and I am most unlikely to think favorably about missing 3 or more quizzes. I will probably drop the lowest homework score of each person.

**2. Syllabus.** Over the two semesters we will cover the topics which appear on the official graduate preliminary written exam syllabus, obtainable from <http://www.math.umn.edu/grad/syllabus.html>, and we will probably cover one or two further things as well. Most of this syllabus is treated by Rotman. The material on the spectral theorem for symmetric and Hermitian matrices does not appear in the book. The sections of the book we will use over the two semesters are Chapters 2 - 4, then sections 5.1 - 5.3, 6.1 - 6.4, 7.1, 7.4, 9.1- 9.5.

**3. Expectations of your work.** You may discuss homework problems with other students, indeed I encourage you to do this; but I would like each person to write out their own homework as an independent effort. If the final exam turns out to be a take-home exam, I expect this to be entirely your own work, done without any collaboration.

As concerns your written style, I expect your homework to contain full written explanations of your arguments. These should be written in English sentences (recall that sentences start with a capital letter, contain a verb and finish with a period or symbol such as?!), and read smoothly as English. If some portion of argument is missing from what you write, you will not get credit by explaining afterwards that you knew it really but you just omitted to write it down. I expect that you all will come with some experience of writing mathematical arguments in this fashion.

**4. Other books.** The following books are very useful:  
D.S. Dummit and R.M. Foote, Abstract Algebra; S. Lang, Algebra; M. Artin, Algebra; I.N. Herstein, Topics in Algebra as well as books by Jacobson and Hungerford.