Math 542: Modern Algebra
Lecture 1, MWF 8:50–9:40, Ingraham 222
Syllabus for Semester II, 2015/2016

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WWW: http://www.math.wisc.edu/∼terwilli/teaching.html

Grader: Yutong Sha `yutong.sha@wisc.edu`

Text: Abstract Algebra, Third Edition, by Dummit and Foote.

Course Content: Our main focus will be Chapters 10, 11, 12 in the text. As a warmup we will cover parts of Chapters 7, 8, 9. Time permitting we will get into Chapters 13, 14. The main topics include modules, submodules, homomorphisms, quotients, simple modules, cyclic modules, free modules, linear transformations, matrices, determinants, elementary matrices, Smith normal form over a PID, characteristic roots, finitely generated modules over a PID, classification of finite abelian groups, rational canonical form, Jordan canonical form, field extensions, roots of polynomials.

Exams and Grades: The course grade is based on a midterm exam, final exam, and homework. The midterm exam is worth 100 points, the final exam is worth 150 points, and the graded homework is worth 100 points. Here is the exam schedule:

- Midterm: Wednesday, March 16 (in class)

- Final exam: Sunday May 8, at 12:25 PM–2:25 PM

Homework: As we go along I will assign homework to be handed in. These will be marked by a graduate student assigned to me. Your work on these exercises should be well presented, in good English. A clear explanation is just as important as the correct answer. It is fine to form a study group and discuss the exercises with your classmates; however the work you hand in should be your own and not copied from someone else. When you turn in your homework it must be a paper copy; please do not email your homework to me or the grader. Late homework will not be accepted. The homework assignments will be recorded on my teaching webpage shown above.

Calculator Policy: During an exam no books, notes, calculators, cell phones, pagers, or any electronic devices will be allowed.

How to prepare for the exams: The text contains a large collection of exercises beyond what is officially assigned; it is recommended that you solve these on your own as time permits. Generally speaking, the more exercises from the text that you work out and understand, the easier the exam problems will seem.

Note: As we go along, I will post my lecture notes on the teaching webpage shown above.