Math 321 - Abstract Algebra - Spring 2005

Instructor: Alex Wilce
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Office Hours: MW 4:10-5:30, TTh 9:00-11:30
(Or by appointment, or serendipitously.)

Description and Objectives: This course provides an introduction to the concepts and methods of abstract algebra. The first half of the course will be devoted to group theory; the second half of the course will focus on rings and fields. Additional topics may be covered as time permits. A collateral goal of the course is to continue students’ training in the craft of constructing (and coherently presenting!) rigorous mathematical arguments.

Texts: This will be a lecture-intensive course, meaning that the primary source of information will be the lectures themselves. These will be supplemented by (i) my course notes, distributed via Blackboard as we go, (ii) the text Modern Algebra, by John R. Durbin (5th ed., Wiley, 2005), available in the bookstore.

Grades will be based on homework (30%), occasional short quizzes (10%), two hour-exams (20% each), and a final exam or project (20%). Exercises will be recommended at the start of each lecture; about once per week, I’ll ask to see certain exercises written up (preferably using LaTeX).

Tentative Schedule (subject to radical change at a moment’s notice):
Weeks 1: Mappings and Binary operations (Durbin, Chapter 1)
Weeks 2-3: Groups I: basic concepts and examples (Durbin, Chapters 2,3)
Weeks 4-5: Groups II: homomorphisms (Durbin, Chapter 4, 5)
Weeks 6-7: Groups III: group actions; Sylow Theorems (Durbin, Chapter 13)
Mid-Term Exam on or about Friday, March 4th
Weeks 8-9: Rings and fields; ring homomorphisms and ideals (Durbin, Chapters 6, 9)
Weeks 10-12: polynomials; field extensions (Durbin, Chapters 8,9,10)
Weeks 13-14: further topics, as time and interest allow.
Final Exam: Thursday, May 5, 11:30-1:30

Attendance and Academic Honesty: I will follow the policies set forth in the student handbook.

Advice: This is a serious course, requiring a substantial and sustained investment of time outside of class. Arrange your schedule accordingly. Make use of my office hours! (Note: I will be on very a tight schedule this semester, so if you need to see me outside of regular office hours, you will probably need an appointment.)