

ABSTRACT ALGEBRA II
22m:121, Spring, 1999

Instructor: Fred Goodman
Office: 325G McLean Hall
Phone: 335-0791
Office Hours: To be arranged.

Course goals: This is a continuation of 22m120, in which we treated the basics of group theory. The goals of this course will be for you to continue learning the elements of modern algebra; to develop your skills and strategies for mathematical investigation and problem solving; and to improve your mathematical writing, and your ability to engage in mathematical discussion.

Textbooks:

F. Goodman, *Algebra: Abstract and Concrete*, Prentice Hall. This is the required text, which we will follow for much of the course.

M. Artin, *Algebra*, Prentice Hall. This is recommended as a supplementary text.

Course plan: We will cover most of the required text, and some other topics, for example from the recommended text, in two semesters. In the second semester, we will begin with the structure of finite abelian groups, and continue with a treatment of rings, fields, and modules. The pace of the course will presumably increase as we go along and you become more adept at the sort of work required. There will be a great deal of emphasis on problem solving, and we will spend a lot of class time discussing exercises.

Homework: There will be about ten homework assignments which will require *lots* of time. You may collaborate on homework (discussing mathematics with your peers is an important skill), but you must write your own solutions. In general your homework solutions should be literate; the point is to explain your method, not just to obtain an answer. A good criterion for an adequate explanation is the following: a person who knows about as much as you do, but who has not thought about the problem should be able to understand the solution by looking at your paper. That is, the person should be able to understand, without looking elsewhere, what is the problem, what is the idea behind your approach, and what are the details of your solution.

Exams and grading: There will be one or two midterm exams on dates to be arranged. There will be a comprehensive final exam. Grades will take into account both homework and exams. I will weigh most heavily what you do best, but the homework will receive substantial weight.

Other resources: We may find some opportunity to do computer exercises or experiments, for example using *Mathematica*. It will be possible to do this work on the department unix system, or on Macs or PC's. Course information will be regularly posted on my web page at

www.math.uiowa.edu/~goodman.

Attendance and absences: Regular attendance will be expected. However, if you must miss class, you will still be responsible for the material discussed in class. You are responsible for announcements made in class, which may concern changes in the assignments, syllabus, exams, etc. Absence from exams will require a compelling reason, and must be arranged in advance.

Complaint procedure: I hope and expect that you will have a good time, work a lot and learn a lot in this course. However, if you have concerns or complaints about any aspect of the course, you are welcome to discuss these with me. If you feel that you have not received satisfaction from me, you may contact the Chair of the Department of Mathematics. If the matter is still not resolved at that level, you may pursue complaint procedures at the Collegiate level.

Accomodations for students with special needs. Students with disabilities are entitled to special arrangements. There is a procedure for arranging such accomodations which involves the office of Student Disability Services. Please contact me if you would like to take advantage of such arrangements.