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Fall '02

Math-627a - Modern Algebra I

Class Meetings: MW, 14:00-15:15pm in BA 260.

Office Hours: After class in BA-210 or by (email) appointment.

Required Text: No text required. There are a number of good textbooks around on the matter. For preparation I recommend a recapitulation of essentials in *Elements of Modern Algebra* by J. Gilbert and L. Gilbert, or whatever textbook you have used in 521a/b. Further references will be given in class.

Outline: We will discuss:

- (a) Groups, normal subgroups and quotient groups, homomorphism, Sylow theorems.
- (b) Solvable groups, permutation groups and simplicity of A_n .
- (c) Cyclic groups, abelian groups, fundamental theorem on finite abelian groups.
- (d) Polynomials rings, unique factorization, irreducibility criteria.
- (e) Extension fields, algebraic extensions, finite fields.
- (f) Geometric constructions, Ruler and Compass issues.

Midterms: There will be 2 midterms at a $1\frac{1}{2}$ -monthly basis. Theses are scheduled for Wednesdays, if not announced otherwise.

Assignments: I am planning to assign problem sets regularly. Solving these you are encouraged to work with others, but also required to write down your results independently. Clear exposition in writing proofs is mandatory, and whatever you state requires justification.

Grading Scale: A: 100-85%, B: 84-70%, C: 69-55%, D: 54-40%, F: below 40%.

Note: For each exam one arbitrarily densely written letter-sized sheet of paper (cheat sheet) will be allowed. The weight for the various exams and assignments are given by:

problem sets:	30% each
midterm:	30%
final exam:	30%

First Midterm: (at a certain date).

I wish you good luck and excellent results!