Hunter College of The City University of New York

MATH 311 Abstract Algebra I 3 hrs, 3 cr

Textbook: A First Course in Abstract Algebra by John B. Fraleigh, 7th edition, Addison-Wesley

A. Group Theory

Binary Operations
Groups
Subgroups
Permutation Groups
Orbits and Cycles
Cyclic Groups
Cosets and Lagrange
Homomorphisms
Isomorphisms and Cayley's Theorem
Factor Groups
Fundamental Homomorphism Theorem

B. Rings

Rings and Fields
Integral Domains
Little Fermat and Euler Theorems
Fields of Quotients
Polynomial Rings
Polynomial and Division Algorithm
Remainder Theorem/Factor Theorem
Homomorphisms and Factor Rings
Prime and Maximal Ideals and PIDs, Prime Ideals

C. Field Theory (Introduction)

Field Extensions
Existence of a Splitting Field
Constructibility with Ruler and Compass –Trisecting Angles