Abstract Algebra, Math 3330

COURSE PURPOSE: An introduction to abstract algebraic structures, emphasizing group and ring theory.

COURSE OBJECTIVES: Upon completion of this course, students may take Advanced Abstract Algebra - Math 4333 or Graph Theory with Applications- Math 4315.

COURSE CONTENT: Sets, Cartesian products and binary operations. Properties of Integers including Principle of Mathematical Induction, congruences, Division and Euclidean Algorithms and the Fundamental Theorem of Arithmetic.

Groups, cyclic and normal subgroups, isomorphisms and homomorphisms. Finite permutation groups, normal subgroups and quotient groups.

Rings, integral domains and fields. Time permitting - complex numbers and historical outline and significance of Galois theory and algebraic geometry emphasizing its computational character. This part of the course apart from possibly introduction to complex numbers will be excluded from tests.

COURSE STRUCTURE: Each class will start with discussion of homework problems. Although working on these problems is optional, the final grade may be somewhat adjusted for active class participation. Two mandatory tests will be preceded by review sessions in the form of questions and answers.

TEXTBOOKS: "Modern Algebra" by Jimmie Gilbert and Linda Gilbert.

COURSE REQUIREMENTS: see the next point.

EVALUATION AND GRADING: Grading policies will be announced by the instructor in the first week of class.