MOREHOUSE COLLEGE
DEPARTMENT OF MATHEMATICS

ABSTRACT ALGEBRA I
MATH 371

Prerequisite: Math 255 or Math 280, and Math271 with a grade of "C" or better
Text: Algebra: Pure & Applied, by Aigli Papantonopoulou, (Prentice-Hall, 2001)
Coverage: Chapters 1-3.

COURSE OUTLINE

CHAPTER 1. Groups
- 1.1 Examples and Basic Concepts
- 1.2 Subgroups
- 1.3 Cyclic Groups
- 1.4 Permutations

CHAPTER 2. Group Homomorphisms
- 2.1 Cosets and Lagrange's Theorem
- 2.2 Homomorphisms
- 2.3 Normal Subgroups
- 2.4 Quotient Groups
- 2.5 Automorphisms

CHAPTER 3. Direct Products and Abelian Groups
- 3.1 Examples and Definitions
- 3.2 Computing Orders
- 3.3 Direct Sums
- 3.4 Fundamental Theorem of Finite Abelian Groups

BEHAVIORAL OBJECTIVES

After successfully completing this course, the students should be able to perform the following tasks:

- Basic definitions and examples of groups, subgroups, cyclic groups, permutation groups, dihedral groups, matrix groups, center of a group, commutator subgroups, centralizers and cosets
- Lagrange's theorem, normal subgroups and quotient groups, homomorphism and isomorphisms, fundamental theorem of finite Abelian groups

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