Introduction to Theory of Groups
Math 704 – Summer 2008

Professor: Jennifer Paulhus (paulhus@math.ksu.edu – CW 125)

Prerequisites: Math 512 or consent of instructor

Textbook: David S. Dummit and Richard M. Foote. *Abstract Algebra.* Third Edition.

This course is an introduction to groups. We will begin with a brief review of the material from Math 512: the basic definitions, homeomorphisms of groups, symmetric groups, dihedral groups, and the isomorphism theorems. After that we will cover such topics as direct products of groups, group actions, the Jordan-Holder and Sylow theorems, as well as nilpotent and solvable groups. This material constitutes the fist six chapters of the book by Dummit and Foote mentioned above. In particular, we will cover the Algebra qualifying exam syllabus for groups.

As an application as time permits at the end of the semester we will introduce some basic character theory. For instance, we may cover the first few chapters of Serre's *Linear Representations of Finite Groups.* Chapters 18 and 19 of Dummit and Foot's Abstract Algebra book also discuss some of this material.

Homework will be assigned throughout the semester and there will be a final exam.

For more information about the course, please contact Jennifer Paulhus