

WEBSTER UNIVERSITY

Course Syllabus

MTHC 5360.01 Algebraic Structures
Spring 2007

Andrea Rothbart
rothbart@webster.edu
(314) 968 6976
Office Hours: T,W, R 3:30 - 5
Room 248 Webster Hall

1. **Course Description:**

This course is designed for secondary and community college math teachers. We will investigate the algebra of a variety of mathematical structures including groups of permutations and matrices, rings of polynomials and composite modular systems, and fields of complex numbers and prime modular systems. Relevant theory will be developed.

2. **Learning Outcomes:**

The students will obtain a more sophisticated understanding of ordinary algebra and its relationship to the rest of mathematics. They will also further develop their ability to express mathematical arguments clearly and concisely.

3. The following is an approximation to a schedule of classes, and is intended to provide students with additional information concerning course content.

CLASSES 1-2: Functions and Binary Operations

CLASSES 3-5: An examination of a variety of groups including groups of permutations, symmetries, matrices, and functions. Solving equations over these groups.

CLASS 6: QUIZ

CLASSES 7-10: An examination of a variety of fields including prime modular systems and subfields of the complex numbers. Field Extensions. Solving equations over these fields.

CLASS 11: Quiz

Syllabus for Algebraic Structures continued

CLASSES 12 – 15: An examination of a variety of rings, including polynomial rings and composite modular systems. Solving equations over these rings.

4. **RESOURCES:** Materials will be distributed by the instructor.

5. **EVALUATION:** The course grade will be primarily based upon examinations and class participation.

This syllabus is subject to change at the discretion of the instructor.
Therefore, regular attendance is required.