Math 361
Algebraic Structures II

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Office Hours: 10:00-10:50 M-F or by appointment

Topics

1. FHT, Quotients, Normal Subs
2. Cyclic Groups and Subgroups (S8)
3. Group Explorer and Cayley Digraphs (S9)
4. Permutations and Cayley's Theorem (S10)
5. Cosets and LaGrange's Theorem (S12)
6. Direct products and the Classification of Groups (S13)
7. Rings (S2, S3, Part II)
8. Ideals and the FHT (S4,S5)
9. Fields (S7,S8)
10. Rings of Polynomials and their Quotients (S9,S10)

About This Class

Algebraic Structures is about the "superstructure" of mathematics. It is a course in the mathematics curriculum that demands formal use of logic to prove theorems. The course content highlights a framework supporting nearly ALL modern mathematics. As such, the subject cannot be learned by cursory survey, but must be examined with intensity. Take time to think about and discuss ideas and to write and rewrite proofs. Make working with others a priority, but also take time to internalize the ideas.

Time and Place

Meets in Hertz 120
MWF at 11:00-11:50
Please contact me if you have special needs.

Assessment and Evaluation

Participation 10%
Quizzes 15%
Homework Notebook 15%
Midterm Exam 35%
Final Exam 25%

Final Grading

93-100% A
90-92% A-
87-89% B+
83-86% B
80-82% B-
77-79% C+
73-76% C
70-72% C-
67-69% D+
63-66% D
60-62% D-
Below 60% F

Course Description

Algebraic Structures II is the study of various types of categories and their inherent structures. In this course we examine Sets, Groups, and Rings.

Objectives

1) Students will demonstrate reasoning and problem solving ability by modeling, generalizing, and justifying the main notions associated with Algebraic Structures, particularly Sets, Groups, Rings, and Fields.

2) Students will demonstrate excellent written and oral communication in their demonstrations of Objective 1).

3) Students will demonstrate cooperative learning skills both inside and outside of class.

Texts

Math 361 Algebraic Structures II
by
Dr. Chris Black

Download and install Group Explorer