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## Math 361 Algebraic Structures II

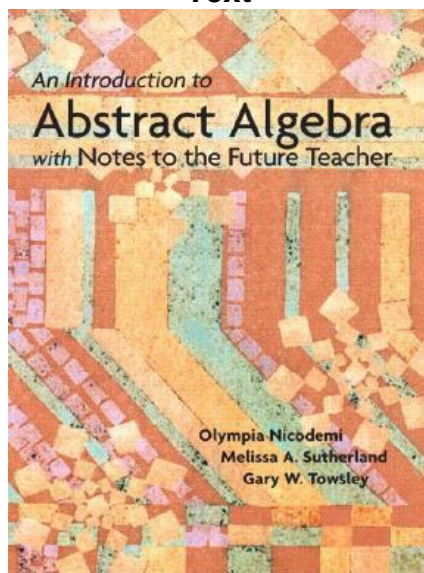
Meets in  
Hertz 120

Special Needs  
Please contact me if you have  
special needs.

### Course Description

Algebraic Structures II is the study of various types of sets (categories) and their inherent structures. In this course, we examine rings, fields, and their structure preserving functions (morphisms).

### Text



### Assessment and Evaluation

- 1) Homework 15%
- 2) Quizzes 15%
- 3) Participation 10%
- 3) Midterm 30%
- 4) Final Exam 35%

### 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

### Objectives

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

### Schedule

Week 1-Subgroups  
Week 2-Partially Abelian Groups, Conjugacy Classes, Center; Normal Subgroups  
Week 3-Quotient Groups  
Week 4-Fundamental Homomorphism Theorem  
Week 5-Rings and Fields I  
Week 6-Rings and Fields II  
Week 7-Applications of Rings and Fields  
Week 8-The Complex Field  
Week 9-Vector Spaces and Algebras  
Week 10-Vector Spaces and Algebras

### About This Class

Algebraic Structures is traditionally 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 yourself. Rewards for your hard work will include understanding the "superstructure" of mathematics.