**Instructor**: Mike Lundin
Office: Bouillon 108D
E-mail: Lundin@cwu.edu
Web: http://www.cwu.edu/~lundin/
Phone: 963-1398
Office Hours: 1:00-2:00 M-F

# Math 360 Algebraic Structures I

Meets in Bouillon 106
MWF at 2:00

Please contact me if you have special needs.

## Course Description

Algebraic Structures I is the study of various types of sets (categories) and their inherent structures. In this course, we examine Rings and Fields.

## Schedule

Week 1 Relations
Week 2 Functions
Week 3 Congruences
Week 4 Z/(n); Intro to Rings
Week 5 Complex Number Field
Week 6 Rings of Polynomials
Week 7 Factoring Rings
Week 8 FTs Arithmetic and Algebra
Week 9 Special Topics
Week 10 Special Topics
Final Exam: Friday, March 14, 12:00-2:00

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## About This Class

Algebraic Structures is traditionally a first 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.

## Assessment and Evaluation

1) Participation 10%
2) 1 midterm 30%
3) Project 15%
4) Final Exam 35%
5) Homework 10%

## Final Grading

93-100% A

90-92% A-

87-90% 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 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.

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## Text

*Abstract Algebra* by Nicodemi, Sutherland, and Towsley