

## Math 742: Abstract Algebra

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**Office Hours:** MTuWTh: 11:45 am-1: 15 pm  
Feel free to make appointments for other times.

**Text:** Contemporary Abstract Algebra by Joseph Gallian, Brooks/Cole, 7<sup>th</sup> edition. Problems will be assigned from this version of the book.

### Course Coverage:

Topics covered include Rings, Integral Domains, Fields, Ideals and Factor Rings, Ring Homomorphisms, Polynomial Rings, Factorization of Polynomials, Divisibility in Integral Domains, Special Topics in Fields, and Sylow Theorems.

### Course Objectives:

The purpose of this course is to study the core concepts of Abstract Algebra in a rigorous way. The goal of the course should be mastery of these core topics as well as problem-solving capability. Also, it provides opportunities for students to learn to write mathematical discussions in a clear and coherent way.

**Grading:** Exams: 50%  
Homework: 40%  
Presentations & Class Participation: 10%

Homework will be assigned each class and discussed some. Selected homework problems will be collected and graded. These assignments must be well written. It is necessary to convince others that that your method and solution are valid. An argument presents reasons why some statements should be accepted as true. In mathematics, as opposed to other disciplines, these arguments are formal. You will be asked to present some problem solutions and proofs of some theorems. Details will be provided later. Class participation includes asking and answering questions, and regular attendance.

[90, 100] A, [86, 90) AB, [80, 86) B, [75, 80) BC, [70, 75) C,  
[60, 70) D, [0, 60) F