

## Math 210 Course Description

This is an introductory course on abstract algebra. In this course, among other things, you will learn how to give rigorous proofs to mathematical statements.

Topics to be covered are:

- Division algorithm, divisibility, primes, unique factorization
- Congruence and congruence classes
- Modular arithmetic
- The Chinese remainder theorem and applications
- Rings: definition and examples
- Basic properties of rings
- Isomorphisms and homomorphisms
- Polynomial rings in one variable
- Irreducibility of polynomials
- Congruence in  $F[x]$ , arithmetic
- Ideals and quotient rings
- Isomorphism theorems
- Gaussian integers