MAT 350 – Theory of Numbers

Catalog Description: Elementary number theory; divisibility theory, congruences, residues, Diophantine equations. Prerequisite: a grade of C - or better in MAT 224. Fulfills: LASR. (3 cr. hr.)

Goals/Objectives

- To introduce students to basic results in elementary number theory
- To introduce students to applications of number theory

Required Topics

- Natural numbers
- Divisibility: The division algorithm, GCD and LCM, the Euclidean algorithm, Pythagorean triples
- Prime numbers: The Fundamental Theorem of Arithmetic, infinitude of primes, number theoretic functions, the greatest integer function
- Modular Arithmetic, congruence, Fermat’s Little theorem, Diophantine equations, Chinese remainder theorem
- Cryptology

Optional Topics:

- Perfect and amicable numbers
- Quadratic congruences
- Continued fractions
- Sums of squares