

OFFICIAL SYLLABUS

MATH 315 – NUMBER THEORY

Adopted - Spring 2005 (Committee: Drs. Hasty, Parish)

Catalog Description. Divisibility, primes, numerical functions, congruences, introduction to coding theory, continued fractions, rational approximations. Prerequisite: Math 125

Textbook – *A Friendly Introduction to Number Theory*, by Silverman (Third Edition)

Course Outline and Topics

Pythagorean Triples

Primitive Pythagorean Triples

Divisibility and the Greatest Common Divisor

Linear Equations and the Greatest Common Divisor

Fundamental Theorem of Arithmetic

Congruences, Powers, and Fermat's Little Theorem

Euler's Formula and Phi Function

Prime Numbers, Counting Primes, Mersenne Primes, Perfect Numbers

Powers Modulo m and Successive Squaring

Computing k^{th} Roots Modulo m

Codes

Any instructor should cover all of the material specified, additional material is optional.