

Syllabus For Math 640:356:01

Spring, 2009 at Rutgers-Camden

COURSE TITLE: Theory of Numbers

TEXT: Elementary Number Theory, Sixth Edition, by David M. Burton, McGraw Hill.

COURSE DESCRIPTION: This is a three-credit introductory course on number theory. We will cover Chapters 1-10 and selected topics from other chapters in the textbook. Topics include: well-ordering principle, mathematical induction, Fibonacci numbers, divisibility; prime numbers, distribution of primes, greatest common divisor, least common multiple, Euclidean algorithm, fundamental theorem of arithmetic, Fermat numbers, linear Diophantine equations; congruences, linear congruences, Chinese remainder theorem, Wilson's theorem, Fermat's little theorem, pseudoprimes, Euler's theorem; the Euler Phi function, sum and number divisors, perfect numbers, Mersenne numbers, Möbius inversion; Public-key cryptography, RSA encryption method, knapsack ciphers, cryptographic protocols.

COURSE INFORMATION:

- Instructor: Siqu Fu
- Office: BSB 428
- Office hours: MW 11:30-1:00 and by appointments
- Phone: (856) 225-2349.
- E-mail: sfu@camden.rutgers.edu
- Web page: <http://crab.rutgers.edu/~sfu/>
- Lectures: MW 1:20-2:40, ATG-206

GRADING POLICY: There will be two midterm tests and a comprehensive final exam. There will also be several quizzes and homework assignments.

- Attendance, Participation, Quizzes, and Homework—15%
- Midterm I—25%
- Midterm II—25%
- Final—35%

Dates for homework assignments and exams will be announced in class. Attendance is mandatory.