

MATH 42: INTRODUCTION TO NUMBER THEORY
COURSE SCHEDULE
SPRING 2011

This schedule may change as the semester progresses.

- 1/27: Introduction, What is Number Theory?
- 2/1: Linear Diophantine Equations, Euclidean Algorithm
- 2/3: Linear Diophantine Equations continued, Magic Box
- 2/8: Fundamental Theorem of Arithmetic, Unique Prime Factorization (*Pset 1 due*)
- 2/10: Modular Arithmetic, Linear Congruences, Units
- 2/15: Euler φ function, Powers, Order (*Pset 2 due*)
- 2/17: Fermat's Little Theorem, Euler's Theorem
- 2/22: **President's Day: No class**
- 2/24: Cryptography (*Pset 3 due*)
- 3/1: **Midterm 1**
- 3/3: Systems of congruences
- 3/8: Chinese Remainder Theorem (*Pset 4 due*)
- 3/10: Primitive roots, Orders revisited
- 3/15: Using tables of indices (*Pset 5 due*)
- 3/17: The Legendre symbol
- 3/22: Squares mod p : -1 (*Pset 6 due*)
- 3/24: $\mathbb{Z}[i]$: Norms, primes, units
- 3/29: **Spring Break-No class**
- 3/31: **Spring Break-No class**
- 4/5: $\mathbb{Z}[i]$ continued, Sums of squares (*Pset 7 due*)
- 4/7: $\mathbb{Z}[i]$, $\left(\frac{-1}{p}\right)$, Sums of squares
- 4/12: **Midterm 2**
- 4/14: $\left(\frac{2}{p}\right)$
- 4/19: Quadratic Reciprocity (*Pset 8 due*)
- 4/21: UPF revisited: $\mathbb{Z}[\sqrt{-5}]$, $\mathbb{Z}[\sqrt{2}]$
- 4/26: Continued Fractions of square roots (*Pset 9 due*)
- 4/28: Units in $\mathbb{Z}[\sqrt{D}]$, Super Magic Box
- 5/3: UPF revisited conclusion (*Pset 10 due*)
- 5/5: Catch-up day and/or review
- 5/10: Review