

DEPARTMENT OF MATHEMATICS SYLLABUS

Course # & Name: Mathematics 115B: Number Theory

Recommended Text(s) & Price: Rosen's "Elementary Number Theory and Its Applications" 4th Edition (\$116.00)

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Lecture(s)	Sections	Comments/Topics
1-5	ch. 7.4, 7.3	Famous functions of number theory: Möbius inversion, multiplicative functions, sum of positive divisors, Morton's conjecture, perfect numbers
6-13	ch. 9.1-9.3 ch. 10.1, ch. 10.2	More congruences, primitive roots, applications: pseudorandom numbers, the ElGamal Crypto System
14-21	ch 11.1-11.3	Quadratic reciprocity, Legendre symbol, Jacobi symbol, the law of quadratic reciprocity
22-27	ch. 13	Nonlinear Diophantine, equation and continued fractions, Pythagorean triples, Fermat's last Theorem, Pell's equation, sums of squares

Additional Notes:

Covers Rosen chapters 7, 9-13

