

MATH 568 NUMBER THEORY II

SYLLABUS

Schedule No:	770467
Instructor:	Bob Vaughan
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Office Hours:	MWR 1:45-2:30 and otherwise by arrangement.
Class:	TR 02:30-3:45 113 McAllister.
Text:	Ireland/Rosen, A Classical Introduction to Modern Number Theory, 2nd Ed. Springer Verlag 1990 0-387-97329-X.
	The following texts are useful for further reading.
	Apostol, Introduction to Analytic Number Theory, Springer Verlag 0-387-90163-9.
	Davenport, Multiplicative Number Theory, 3rd edition, Springer Verlag 0-387-95097-4.
	Samuel, Algebraic Theory of Numbers 1972, Kershaw (out of print).
Homework:	Due on Tuesdays, starting 2e3rd January.
Grading:	Based on Homework and Attendance.
Prerequisite:	Any course on abstract algebra or elementary number theory.

Topics will be chosen from the following

Chebychev's inequalities for the prime counting function. and Merten's theorem.

Zeta functions and the prime number theorem.

Modular functions.

The approximation of real numbers by rationals, diophantine approximation, criteria for irrationality, examples of transcendental numbers.

p-adic numbers and the local-to-global principle.

Algebraic Numbers and Algebraic Integers.

Ideal class groups.

Finite Fields.

Jacobi sums.

Equations over finite fields.

An Introduction to Elliptic curves.