

Fall 2012

Math 87800: Analysis and Number Theory

Monday 2:00-4:00 pm, Rm. 8405

Prof. Alexander Gamburd

We will begin this year-long course by presenting some of the fundamental techniques and results in analytic number theory, including, in particular, Dirichlet's theorem on primes in arithmetic progressions; de la Vallee Poussin/Hadamard prime number theorem; Vinogradov's theorem on representation of odd integers as sum of three primes. We will then turn to the recent developments related to affine linear sieve, covering, in detail, sieve methods and pertinent results from arithmetic combinatorics, including, in particular, approximate groups. Time permitting, an outline of the proof of the Green-Tao-Ziegler Theorem will also be presented.

Prerequisite: basic complex analysis.