

Second Course in Analytic Number Theory

Our course will cover these topics:

Gauss Sums, functional equation of Dirichlet L-functions, Dirichlet's class number formula, zeros of zeta, explicit formula, pair correlation of zeta zeros, moments of zeta, Voronoi summation, partition problems, modular forms and Hecke operators, Selberg trace formula.

There won't be any graded homework or tests, though I will leave some details as exercises for students to do on their own. The course grade will be based on student presentations to be given at the end of classes.

Prerequisites: This course assumes basic familiarity with a first course in analytic number theory- summation by parts, Poisson summation, Dirichlet series, functional equation of the Riemann zeta function, Prime Number Theorem, Dirichlet's Theorem concerning primes in arithmetic progression.