Spring 2024
Special Topics in Mathematics: Analytic Number Theory

Instructor:

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Course Content:

* Arithmetic functions.
* Big-oh notation and average orders of arithmetic functions.
* Elementary theorems on the distribution of prime numbers, introduction to the prime number theorem.
* Characters of finite abelian groups.
* Dirichlet's theorem on primes in arithmetic progressions.
* Dirichlet series and Euler products.
* Zeta- and L-functions.
* Analytic proof of the prime number theorem.

Course Outline:

Weeks 1-2: Arithmetic functions.
Week 3: Big-oh notation and average orders of arithmetic functions.
Weeks 4-5: Elementary theorems on the distribution of prime numbers, introduction to the prime number theorem.
Week 6: Characters of finite abelian groups.
Weeks 7-8: Dirichlet's theorem on primes in arithmetic progressions.
Week 9: Dirichlet series and Euler products.
Weeks 10-11: Zeta- and L-functions.
Weeks 12-14: Analytic proof of the prime number theorem.

Course Policies:

	percent	number of
Weekly homeworks	% 100	12 (tentatively)