Course Title: Topics in Algebraic Number Theory

Course #: 87000

Time and Location: Thursdays 2PM-4PM, Graduate Center of CUNY

Instructor Name: Victor Kolyvagin

Contact Information: VKolyvagin@gc.cuny.edu

Description:

The accent in the course will be on arithmetic of elliptic curves and curves of genus one over number fields. Main topics will include:

- Congruent numbers, elliptic curves, Mordell-Weil theorem;
- L-function of an elliptic curve, modular parametrization, Berch-Swinnerton-Dyer conjecture - rank part;
- Problem of existence of a rational point on a curve of genus one, the case of a local field, the case of a global field, Hasse principle;
- Main homogeneous spaces over an elliptic curve, the Shafarevich-Tate group of an elliptic curve;
- The full Birch-Swinnerton-Dyer conjecture, the method of Euler systems (Introduction).