Tutor :

Nuno Ricardo Barroso de Freitas

https://www.icmat.es/miembros/nfreitas/

Method :

Online meetings.

Language :

English, Spanish or Portuguese

Project Title :

The Frey–Mazur Conjecture

Summary :

The Frey–Mazur conjecture states that if two elliptic curves defined over $\mathbb{Q}$ are congruent modulo a prime $p > 17$ then they must be $\mathbb{Q}$-isogenous. This is one of the main open problems in the theory of elliptic curves and it has various well known consequences, including to the resolution of Diophantine equations. The goal of this project is to introduce the student to the basics of the theory of elliptic curves and algebraic number theory required to make sense of the conjecture statement. This will equip the student with important tools for the study of current research problems in number theory.