Elliptic curves are a special kind of curve that can be given as solutions to equations of the form 

$$y^2 + a_1 xy + a_3 y = x^3 + a_2 x^2 + a_4 x + a_6,$$

with an added point at infinity. I will begin with an introduction to basic definitions, followed by a discussion of their significance, plus what we know (and don’t know) about the group structure on their $\mathbb{Q}$- and $\mathbb{F}_p$-points.