Abstract: Let $C_m : y^2 = x^m + c$ be a smooth projective curve defined over $\mathbb{Q}$. We would like to study the limiting distributions of the coefficients of the normalized L-polynomial for $C_m$. To determine the distributions, we study the Sato-Tate groups of the Jacobians of the curves. In this talk, I will give both general results and explicit examples of Sato-Tate groups for certain curves $C_m$. I will then use these groups to determine the limiting distributions of the coefficients of the normalized L-polynomial. This is joint work with M. Emory.