1100-11-98 **Alejandra Alvarado** and **Edray Herber Goins*** (egoins@math.purdue.edu), Mathematical Sciences Building, 150 North University Street, West Lafayette, IN 47907-2067. *Arithmetic Progressions on Curves.*

The set $\{1,\ 25,\ 49\}$ is a 3-term collection of integers which forms an arithmetic progression; the common difference is 24. Hence the set $\{(1,1),\ (5,25),\ (7,49)\}$ is a 3-term collection of rational points on the parabola $y = x^2$ whose y-coordinates form an arithmetic progression. Similarly, the set $\{6,\ 12,\ 18\}$ is a 3-term collection of integers which also forms an arithmetic progression; the common difference is 6. Hence the set $\{(6,3),\ (12,39),\ (18,75)\}$ is a 3-term collection of rational points on the elliptic curve $y^2 = x^3 - 207$ whose x-coordinates form an arithmetic progression. Are there other examples such as these? What is the longest progression of rational points on either a quadratic or cubic curve such that either the x- or y-coordinates form an arithmetic progression? In this talk, we give a survey on what's known about arithmetic progressions on algebraic curves. We introduce elliptic curves as a means to show the non-existence of certain arithmetic progressions. We also introduce bielliptic curves in order to settle conjectures of Saraju P. Mohanty. This project is joint work with Alejandra Alvarado. (Received February 01, 2014)