1125-11-2881 **Heidi E Goodson*** (hgoodson@haverford.edu). *Hypergeometric Functions and Relations to Arithmetic and Analytic Properties of Curves.*

In 1965, Manin proved that the rows of the Hasse-Witt matrix of an algebraic curve are solutions to the differential equations of the periods, thus making a connection between arithmetic and analytic properties of curves. In the case of elliptic curves, the Hasse-Witt matrix has a single entry: the trace of Frobenius. For an elliptic curve in the Legendre family, the trace of Frobenius can be expressed in terms of a finite field ${}_2F_1$ hypergeometric function and the period of the curve can be expressed in terms of a matching classical ${}_2F_1$ hypergeometric series. Furthermore, I have shown that these matching hypergeometric expressions are congruent modulo p. In this talk, I will give an overview of these results and extend them to a family of higher genus generalized Legendre curves. (Received September 20, 2016)