1067-11-2267 **Edray Herber Goins*** (egoins@math.purdue.edu), Mathematical Sciences Building, 150 North University Street, West Lafayette, IN 47907. *Galois Representations and L-Series: A Tour Through Mathematics.*

Modern number theory has translated questions of rational numbers satisfying various conditions into questions of points on group schemes. For example, the infinitude of primes in arithmetic progressions may be shown using representations associated to cyclic groups; and even Fermat's Last Theorem may be shown using representations associated to elliptic curves. Surprisingly, many branches of math come into play: the topology of Galois groups, the combinatorics of counting points over finite fields, the linear algebra of Tate modules, and the analysis of the convergence of L-series. In this talk we give a tour of the mathematics used to answer questions from number theory and discuss some open problems from the Langlands Program. (Received September 22, 2010)