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**Jeske Glenn, Christopher O'Neill\*** (coneill@math.ucdavis.edu), **Vadim Ponomarenko** and **Benjamin Sepanski**. *Numerical semigroup invariants and eventually quasipolynomial behavior.*

A numerical semigroup  $S$  is a subset of the natural numbers that is closed under addition, and a factorization of  $n \in S$  is an expression of  $n$  as a sum of generators of  $S$ . In this talk, we examine several factorization invariants, which are arithmetic quantities assigned to each semigroup element  $n$ , such as the maximum factorization length of  $n$  or number of distinct factorization lengths of  $n$ . A surprisingly large collection of factorization invariants coincide with a quasipolynomial (that is, a polynomial with periodic coefficients) for sufficiently large semigroup elements; we explore structural reasons for this phenomenon, as well as its implications on computation. Several of the results presented here are from an undergraduate research project from the 2017 SDSU REU. (Received September 09, 2017)