Department of Mathematics
Fall 2017 Colloquium Series

Foolhardy Forays into
Generalizations of the Collatz Conjecture

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BSS 204, 4:00 pm

Take a positive integer. If it is even, divide by two; if it is odd, multiply by three and add one. The $3X + 1$ Problem or Collatz Conjecture states that for any choice of a positive integer, only finitely many iterations are needed to reach one. A humorous corollary is that if you repeat this process long enough, your friends will stop asking you if you want to hang out. The statement has been verified for all values up to 87×2^{60} , but has not been proven. Paul Erdős famously stated that he did not think math ready for problems such as these. For those who choose to ignore his warnings, a natural extension of this problem is to consider the behavior of similar functions over other rings of quadratic integers. Such functions were studied at the 2017 CSU Channel Islands Math REU. We will look at the approaches to this problem generated by the REU research team and what research looks like for an undergraduate.

Erik Knutsen is an undergraduate in Mathematics at Humboldt State University and conducted undergraduate research at the CSU Channel Islands Math REU.

We cordially invite you to the Pre-Colloquium Tea on the third floor of the BSS building at 3:30 pm on Thursday.

http://www.humboldt.edu/math/news-and-events/math-colloquium