How large is \( n! = n(n-1)(n-2)\ldots3.2.1 \) ?

**Monday, February 22, 2016**

Andrus Gerontology Center

Time: 4:00-4:30 pm: Reception in Gerontology Courtyard

Time: 4:30 pm: LECTURE - Gerontology: Leonard Davis Auditorium located in 124

**Short abstract:**
The number \( n! \) (pronounced "n factorial") occurs in many counting problems. For example, that 52! is the number of ways to shuffle a deck of cards. This number grows very rapidly with \( n \), and mathematicians of the 17th century used the new methods of calculus to estimate it. After reviewing some of this work, I'll discuss Euler's Gamma function, which interpolates the function \( F(n) = (n-1)! \) to the real numbers, as well as a more recent analog.

**The rank of elliptic curves**

**Tuesday, February 23, 2016**

3:00-3:30 pm: Reception in Kaprielian Hall 410

3:30-4:30 pm: LECTURE in Kaprielian Hall 414

**Abstract:**
Elliptic curves, which are given by cubic equations in two variables, have been a central object of study in number theory since the time of Fermat. Almost a century ago, Mordell proved that the group of rational points is finitely generated. A number of problems of current interest concern the rank of this group. For example, can it be arbitrary large? I will review the conjecture of Birch and Swinnerton-Dyer, which predicts the rank in terms of the average number of solutions (mod \( p \)) for all primes \( p \), and discuss some recent progress.