

# MANY CHEERFUL FACTS

presents

## On Benford's Law

a talk by Dan Erman

11:10 am - 12:00 on Wednesday, January 25th, in room  
1015.

Many real world data sets have the property that the first of digits of numbers are not evenly distributed. For instance, if you consider the surface area of rivers in North America (or the numbers in the Fibonacci Sequence), you will find that about 30% have a first digit of 1. Stated in the 1930s, Benford's Law precisely describes this phenomenon. But it wasn't until 1995 that a mathematician finally gave a rigorous explanation of the law. This talk will sketch the history of Benford's Law, culminating with a description of Hills proof that "scale invariance implies Benford's Law."

*I am the very model of a modern Major General,  
I've information vegetable, animal, and mineral,  
I know the kings of England, and I quote the fights historical  
From Marathon to Waterloo, in order categorical;  
I'm very well acquainted, too, with matters mathematical,  
I understand equations, both the simple and quadratical,  
About binomial theorem I'm teeming with a lot o' news,  
With many cheerful facts about the square of the hypotenuse!*

- Gilbert & Sullivan  $P \circ P$