Title: **Self-Similar Sets, Hausdorff Dimension, and Peano’s Curve**

Speaker: **Chelsey Erway**, Western Washington University

Abstract: Building on the pioneering work of Borel and Lebesgue, in the early 20th century Felix Hausdorff developed a concept of measure and dimension that has become indispensable to geometric measure theory. Hausdorff dimension generalizes our usual notion of dimension, allowing it to take on fractional values and giving us a way to describe sets that might otherwise be problematic, most notably, self-similar sets.

The talk will outline some basic properties of the Hausdorff measure and will show how the Hausdorff measure allows us to assign fractional dimension to some interesting self-similar sets such as the von Koch curve. The presentation will also describe the construction and properties of a historically important self-similar set: the space-filling curve first described by Peano in 1890. No prior knowledge of measure theory required.

Refreshments will precede the talk at 3:30pm in Bond Hall 300 courtesy of Dr. David Hartenstine.