



Department of Mathematics and Statistics

Colloquium

Tuesday October 22

AMB 164 4:00 - 5:00 pm

**Relieving Banach-Tarski Anxiety.  
What could go wrong?**

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**Abstract**

The Banach-Tarski paradox says that any solid ball in space has a finite partition whose pieces when rearranged via rigid motions create two solid balls each congruent to the original ball. This relies on the axiom of choice, and relates to the existence of sets that are not Lebesgue measurable. To avoid this paradox, can we toss out the axiom of choice, replace it with a more restrictive choice axiom, and require that all subsets of the real line be Lebesgue measurable? We will look into some of the surprises that result from this approach. The prerequisites are slight. Any concepts such as measureability will be explained along the way in relatively simple terms.

Refreshments at 3:45