



## The Department of Mathematics

Presents

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**Friday, March 4, 2016**

**2:00PM – 3:00PM**

**PB 138**

## **Ramsey Theory: The Mathematician's Art of Decluttering and Organizing**

### ***Abstract:***

It's not too late for mathematicians to jump on the decluttering bandwagon. In mathematics, we deal with a lot of information. Ramsey theorems are deterministic principles that allow us to separate the clutter from the facts that we feel are important. For example, Ramsey theorems can be applied to the following scenario, henceforth called "the peanut problem".

Suppose I have a bag of peanuts, each of which is dyed either red or blue. You would like four peanuts of the same color for your art project. How many peanuts do I need to hand you from my bag so that you can be sure to receive at least four red peanuts? How many peanuts do I need to hand you so that you can be sure to receive at least four red or four blue peanuts?

It is surprising how many generalizations there are of the last question, and answers to these questions can be surprisingly difficult to come by. In this talk, I will present some generalizations of the peanut problem, and how these generalizations are used to solve problems in mathematical logic.