

**Date:** Tuesday, February 17th, 2015

**Speaker:** Mohammed K A Kaabar

**Room:** 5W in Neill Hall

**Time:** 4:10 PM – 5:00 PM

**Title:** Linear Programming Models: Asset Pricing and Arbitrage.

**Abstract:**

In this talk, we will start with an example of financial option in a simple one-period binomial model to find the fair price of this option. Then, we will introduce arbitrage and replication, and we will give another example about replicating the financial option using a portfolio of the underlying security and cash. From the previous example, we will deduce the concept of Risk-Neutral Probabilities (RNPs) including Risk-Neutral Probability Measure. We will talk about "Goldman and Tucker Theorem" on the existence of strictly complementary optimal solutions of linear programs. We will use this theorem to prove "The First Fundamental Theorem of Asset Pricing" for a finite set of possible future states. At the end, we will talk briefly about arbitrage detection using linear programming.