

**GRADUATE STUDENT SEMINAR**

**Guest Speaker: PJ Jedlovec**  
**University of Notre Dame**

**Date:** Monday, October 24, 2016

**Time:** 4:00 PM

**Location:** 129 Hayes-Healy Hall



**Lecture Title:**

**Non-Cooperative Games**

**Abstract**

In 1950, the late John Forbes Nash Jr. published his famous PhD thesis, titled "Non-Cooperative Games." The work contained in these pages was monumental for the field of game theory and eventually won him the 1994 Nobel Prize in Economics. However, few people realize just how accessible his landmark PhD thesis is, spanning just 10 pages (in modern formatting) and primarily using mathematical techniques familiar to any math graduate student. In this talk, I will go through the main results of Nash's thesis, explaining their historical and mathematical significance along the way. I will begin with the basic definitions and facts in the theory of non-cooperative, normal-form games. I will then proceed to prove Nash's main theorem, that every finite, non-cooperative, normal-form game has an equilibrium point, as well as a related theorem, that every such game has a symmetric equilibrium point. Next, I will go through some of the applications of Nash's analysis of non-cooperative games and explain their significance. Finally a few volunteers will play an extensive-form game against me, with prizes going to anyone who beats me.