

## ***LOGIC SEMINAR***

**Guest Speaker: James Freitag**  
**University of Illinois at Chicago**

**Date:** Tuesday, April 30, 2019

**Time:** 2:00 PM

**Location:** 125 Hayes-Healy Hall



***Lecture Title:***  
**Bounds in Query Learning**

***Abstract***

We will introduce several models of learning using membership and equivalence queries. It turns out that in these settings, learnability is governed the finiteness of certain notions related to model theory (Shelah 2-rank and the NFCP). The main result of our work is the development an algorithm for learning by equivalence and membership queries which learns an arbitrary concept in polynomially many queries if and only if any such algorithm exists. We'll explain how the result gives quick proofs of many existing results in query learning (sometimes with new bounds). This talk will not assume any knowledge of machine learning - sometimes we will make reference to ideas from model theory, but the talk will be comprehensible without any knowledge of model theory.