Stanford University
Department of Statistics

Departmental Seminar

4:30pm, Tuesday, October 17, 2017
Main Quad Bldg 01-370 Room 370

Refreshments served at 4pm in Sequoia Lounge.

Speaker: Alexander Volfovsky, *Duke University*

Title: Design of experiments for networks with interference

Abstract:

Randomized experiments have long been considered to be a gold standard for causal inference. The classical analysis of randomized experiments was developed under simplifying assumptions such as homogeneous treatment effects and no treatment interference leading to theoretical guarantees about the estimators of causal effects. In modern settings where experiments are commonly run on online networks (such as Facebook) or when studying naturally networked phenomena (such as vaccine efficacy) standard randomization schemes do not exhibit the same theoretical properties. To address these issues we develop a randomization scheme that is able to take into account violations of the no-interference and no-homophily assumptions. Under this scheme, we demonstrate the existence of unbiased estimators with bounded variance. We also provide a simplified and much more computationally tractable randomized design which leads to asymptotically consistent estimators of direct treatment effects under both dense and sparse network regimes.