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DEPARTMENT OF STATISTICS AND BIostatISTICS
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Seminar

Speaker: **Professor Kosuke Imai**
Princeton University

Title: **Covariate Balancing Propensity Score**

Time: **3:20 – 4:20pm, Wednesday, April 2, 2014**

Place: **552 Hill Center**

Abstract

The propensity score plays a central role in a variety of causal inference settings. In particular, matching and weighting methods based on the estimated propensity score have become increasingly common in observational studies. Despite their popularity and theoretical appeal, the main practical difficulty of these methods is that the propensity score must be estimated. Researchers have found that slight misspecification of the propensity score model can result in substantial bias of estimated treatment effects. In this paper, we introduce covariate balancing propensity score (CBPS) methodology, which models treatment assignment while optimizing the covariate balance. The estimation of the CBPS is done within the generalized method of moments or empirical likelihood framework. We find that the CBPS dramatically improves the poor empirical performance of propensity score weighting methods reported in the literature. We also discuss various extensions of the CBPS including the marginal structural models in the longitudinal data settings.

**** Refreshments will be served @2:50pm in Room 502 Hill Center ****