Econ 557a Econometrics of High-Dimensional Models

**Day / time:** Tues/Thurs 2:00-3:20  
**Course Type:** Graduate  
**Course term:** Fall  
**Year:** 2019  
**Visiting Instructor(s):** Denis Chetverikov  
**Location:** Room 108

This class provides an introduction of econometrics of high-dimensional models. The class will cover the following topics: 1) relevant results in probability theory (concentration and maximal inequalities); 2) estimation of linear high-dimensional models using Lasso, Dantzig selector, and related methods; 3) estimation of generalized linear high-dimensional models (e.g., quantile and logit regressions) using penalized M-estimators; 4) basics of machine learning (regression trees, random forests, neural networks); 5) semi-parametric inference in high-dimensional models via double machine learning; 6) related topics in econometrics such as grouped fixed effect estimators in panel data and many moment inequalities. Although the class will be primarily based on research papers, as a general reference, a highly recommended textbook is Wainwright (2019), High-dimensional statistics: a non-asymptotic view point, Cambridge University Press.

**Semester offered:** Fall  
**Course Description:** Course Description

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