

## Topics in E&S: Advanced Microeconometrics

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This is an advanced lecture in microeconometrics. Emphasis will be on cutting-edge methods that are actually applied in current empirical research. An important teaching objective is to understand why the methods work, but the emphasis will not be on statistical technique for its own sake.

Topics will be loosely related to my own work and may include the following:

**Partial Identification:** A currently very active literature in which the instructor is a contributor. Potential content: Moment inequalities, generalized m-estimation, and random sets as theoretical frameworks. Estimation and inference, including computational concerns (these are of first order importance in practice). Applications may be in treatment effects, network models, and estimation of games. The main reading will be original papers, possibly augmented by custom lecture notes.

**Networks and social interaction:** This topic is rapidly gaining momentum. It also connects naturally to both others. Potential content: Linear and nonlinear interactions; games on networks; and network generation as a game. General approaches to identification and estimation, including nonstandard asymptotics (e.g. one growing network). Applications may be in IO and also labor broadly conceived (e.g., contagion of behaviors).

**Causal Inference in high dimensional models:** In my estimation, this topic is about to break in economics. Admittedly I am no expert in it yet. There would be a general primer in machine learning tools, but the emphasis would be on how these can be brought to estimation of structural (causal) parameters, a current focus in econometrics but also in ML (“interpretable models”).