Graphical Models for Causal Inference with Observational Data

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What to Expect

• An introduction to **direct acyclic graphs (DAGs)** for causal inference from *observational data*
  – A rigorous, largely graphical approach to causal inference
• Understand what variables you should control
• Understand what variables you shouldn’t control
• Solid graphical intuition for identification via adjustment (e.g., regression, matching), instrumental variables, and mediation analysis
• Focus mostly on *problems*, less on solutions
• Building dependable intuition, little formal math
• Laying the groundwork for adventures in a fast evolving field.
Procedure

• Lectures interspersed with exercises
• Day 1: central concepts and machinery
• Day 2: making the link to estimation techniques and advanced topics.
• We’ll handle the schedule flexibly to prioritize your interests. Ask questions whenever you want.
Schedule
(Exercises interspersed throughout)

1. Brief review of counterfactual causality
2. DAGs: The Essentials
3. Testable implications of a model
4. Graphical identification criteria
5. Endogenous selection bias
6. Comments on adjustment-based estimation
7. DAGs for instrumental variables
8. Causal mediation analysis

One of the two—you choose
Selected Readings
(Written relatively accessibly)


