

Schedule of Topics

Part 1. Inference without models.

Aug 23.	Causal questions: Observing and intervening	Hernán and Robins (2020) Ch 1 [pdf]
Aug 25.	The target trial	Hernán (2016) [pdf]
Aug 30.	Consistency: Defining potential outcomes	Hernán and Robins (2020) 3.4–3.5 [pdf]
Sep 1.	Sharp bounds and the limits of assumption-free inference	Mullahy et al. (2021) [pdf]
Sep 6.	Exchangeability: Assumptions to block backdoor paths	Greenland et al. (1999) [pdf]
Sep 8.	Population-average causal effects from samples	Westreich et al. (2019) [pdf]
Sep 13.	Positivity: Recognizing the problem of empty cells	Hernán and Robins (2020) 3.3 [pdf]

Part 2. Inference with models.

Sep 15.	The parametric g-formula: Categorical treatments	Hernán and Robins (2020) Ch 13 [pdf]
Sep 20.	The parametric g-formula: Continuous treatments	Rothenhäusler and Yu (2019) [pdf]
Sep 22.	The generality of the g-formula: Using any estimator	Dorie et al. (2019), [pdf]
Sep 27.	The g-formula by matching	Stuart (2010) [pdf]
Sep 29.	The g-formula with propensity scores	Brand and Xie (2010) [pdf]
Oct 4.	Inverse probability weighting	Hernán and Robins (2020) 12.1–12.3 [pdf]
Oct 6.	Marginal structural models	Hernán and Robins (2020) 12.4–12.6 [pdf]

Part 3. Dynamic causal inference.

Oct 13.	Treatments in many time periods	Hernán and Robins (2020) Ch 19.(1,2,3), 20 [pdf]
Oct 18.	Estimation for treatments in many periods	Hernán and Robins (2020) Ch 19.4, 21.(1,2,4) [pdf]
Oct 20.	Mediation: Controlled direct effects	Acharya et al. (2016) [pdf]
Oct 25.	Mediation: Natural direct and indirect effects	Imai et al. (2011) [pdf]

Part 4. Complexities that arise in real settings.

Oct 27.	Defining the estimand is hard	Lundberg et al. (2021) [pdf]
—Deadline. Ideas for the research proposal due Oct 31—		
Nov 1.	Principal stratification: Addressing undefined outcomes	Page et al. (2015) [pdf]
Nov 3.	Principal stratification: Bias in policing	Knox et al. (2020) [pdf]
Nov 8.	Unknown functional forms: Two chances	Glynn and Quinn (2010) [pdf]
Nov 10.	Measurement error: The problem	Hernán and Cole (2009) [pdf]
Nov 15.	Measurement error: Using proxies	Elwert and Pfeffer (2022) [pdf]
Nov 17.	Class guest: Felix Elwert. Discuss “The Future Strikes Back.”	
—Deadline. Final research proposal due Nov 21—		
Nov 22.	Beyond backdoor adjustment: Regression discontinuity	De la Cuesta and Imai (2016) [pdf]
Nov 24.	[No class. Thanksgiving.]	
Nov 29.	Beyond backdoor adjustment: Instrumental variables	Hernán and Robins (2020) Ch 16 [pdf]
Dec 1.	Course recap: Causal inference in observational settings	
—Deadline. Feedback to two peers due Dec 5—		
