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| **Week** | **Unit** | **Day 1 Topic** | **Day 2 Topic** | **Required Discussion Readings** | **Work Due** |
| **1** | 1 | - | Introduction to the Study Design Process | Course Syllabus |  |
| **2** | 1 | Survey Sampling; Variance | Physical Sampling: Systematic vs. Random | MacKay and Oldford 2000 Cochran and Cox 1957 (Ch. 1) |  |
| **3** | 1 | Stratified Sampling; Bias | Political Polling: Sources of Bias | Kennedy et al. 2018 Gelman 2021 | HW1 |
| **4** | 2 | Introduction to RCTs and Causal Inference | Drug Trials: Exchangeability | Wilding et al. 2021 Lincoff et al. 2023 |  |
| **5** | 2 | RCT Variance and Sample Size Calculations | Human Development: Statistical Power | James et al. 2002 Troller-Renfree et al. 2022 | HW2 |
| **6** | 2 | RCT Ethics and Feasibility | Social Policies: Consistency and Estimands | Bertrand and Mullainathan 2004 Gay 2012 |  |
| **7** | 3 | Stratification and Matching | Political Access: Bias-Variance Tradeoff Stratification and Matching | Kalla and Broockman 2016 | Midterm Project |
| **8** | 3 | Multi-Arm/Factorial Designs | Agriculture: Statistical Efficiency | Cochran and Cox 1950, Ch. 5 Schneider et al. 2017 | HW3 Final Project Groups |
| **9** | 3 | Cluster Randomized Trials | COVID-19: Estimands and Variance | Abaluck et al. 2022 Mitjà et al. 2021 |  |
| **10** | 4 | Observational Studies | Nutrition: Exchangeability and Consistency | Willett et al. 1993 Curtis et al. 2016 D'Agostino McGowan et al. 2024 | HW4  Final Project Topics |
| **11** | 4 | Quasi-Experimental Designs | Policy Analysis: Internal and External Validity | Card and Krueger 1994 Abadie et al. 2010 |  |
| **12** | 4 | Case-Control Studies | Law and Study Design: Communication and Certainty | Viewing: *Erin Brockovich* 2000 Heath 2013 Steenland et al. 2014 | HW5 |
| **13** | - | Conclusion | Final Presentations I | Stevenson 2023 | Final Presentations |
| **14** | - | Final Presentations II | - | - | Final Papers |

## Course Schedule