

Joel A. Middleton, PhD
Email: joel.middleton@gmail.com
Phone: (202) 431-1412
Site: <https://joelmidd.github.io/>

SUMMARY

As a skilled statistician, data scientist, and researcher with 20 years of experience, I possess a unique combination of skills. I am well-versed in predictive analytics and machine learning, as well as in behavioral measurement using experiments and surveys. In my academic work, I developed a novel framework for designing and analyzing experiments that is useful in applied settings where analytical results are not readily available due to complex dependencies or spillover. I also have a long track record as a research practitioner, leveraging this expertise creatively to identify optimal research designs in challenging settings, including those with industry-specific constraints, conflict zones, or political campaigns.

EXPERIENCE

- 2022 IC6. META
- Derived and implemented better measures of response consistency/volatility in ad-delivery
 - Identified long-standing reporting errors
 - Identified an improved estimator for experiments, narrowing confidence intervals by up to 50%
- 2014-2022 Assistant Professor, Political Science. UNIVERSITY OF CALIFORNIA, BERKELEY
- Taught statistics, causal inference and public opinion
- 2011-2014 Visiting Assistant Professor, Applied Statistics, Social Science and Humanities. Affiliate, Center for Data Science. NEW YORK UNIVERSITY
- Taught statistics, data science and survey methodology
- 2008-2009 Senior Analyst. ANALYST INSTITUTE
- Designed field experiments evaluating impact of voter persuasion and mobilization
 - Disseminated findings
- 2001-2005 Consultant II. THE RENDON GROUP
- Designed and managed DARPA-funded research project
 - Designed media coding protocols for monitoring news worldwide
 - Trained 40 analysts in coding protocols and implemented quality controls
- 1999-2018 Analyst (1999-2001), Consulting statistician (2001-18). PENN, SCHOEN AND BERLAND ASSOCIATES
- Designed, implemented and analyzed survey experiments (conjoint, maxdiff)
 - Created interactive visualization tools
 - Developed survey instruments

EDUCATION

- 2011 PhD, Political Science. YALE UNIVERSITY
- 2004 MS, Statistics. THE GEORGE WASHINGTON UNIVERSITY
- 1999 MS, Psychology. BROWN UNIVERSITY
- 1997 BS, Psychology. LEWIS AND CLARK COLLEGE

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RESEARCH: STATISTICS, CAUSAL INFERENCE, EXPERIMENTAL DESIGN AND ESTIMATION

A Design-based Theory of Optimal Index Construction
Working paper **2022**, with A Demin and C Samii

A Unified Approach to Evaluating Estimators in Complex Experimental Designs
Working paper **2022**, with H Chang

Accounting for Alternatives When Comparing Effects: Revisiting ‘Bringing Education to Afghan Girls’
[arXiv:2106.15076](https://arxiv.org/abs/2106.15076) **2022**, with D Burde, R Rahnama, and C Samii

Optimized Variance Estimation under Interference and Complex Experimental Designs
[arXiv:2112.01709](https://arxiv.org/abs/2112.01709) **2021**, with C Harshaw, and F Sävje

A New Variance Estimation Principle
[arXiv:2109.09236](https://arxiv.org/abs/2109.09236) **2021**

On Estimating the Variance of Linear Estimators in any Experimental Design
[arXiv:2109.09220](https://arxiv.org/abs/2109.09220) **2021**

Exact Bias Correction for Linear Adjustment of Randomized Controlled Trials (R&R, *Econometrica*)
[arXiv:2110.08425](https://arxiv.org/abs/2110.08425) **2021**, with H Chang and P M Aronow

A Unified Theory of Regression Adjustment for Design-based Inference
[arXiv:1803.06011](https://arxiv.org/abs/1803.06011) **2018**

Potential Bias Inflation with Grouped Data: Comparing of Estimators and Sensitivity Analysis Strategy
Observational Studies **2018**, with M Scott, R Diakow, and J Hill

Bias Amplification and Bias Unmasking
Political Analysis **2017**, **24(3): 307-323**, with J Hill and M Scott

Unbiased Estimation of the Average Treatment Effect in Cluster Randomized Experiments
Statistics, Politics and Policy **2015**, **1: 39-75**, with P M Aronow

A Class of Unbiased Estimators of the Average Treatment Effect in Randomized Experiments
Journal of Causal Inference **2013**, **1(1): 135–154**, with P M Aronow

Bias of the Regression Estimator for Experiments Using Clustered Random Assignment
Statistics and Probability Letters **2008**, **78: 2654–2659**

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APPLIED RESEARCH

Can Communities Take Charge? A Randomized Controlled Trial on Sustaining Schools in Afghanistan
Working paper **2022**, with D Burde, C Samii and Y Wang

Can Foreign Aid Boost State Legitimacy During Conflict? Experimental Evidence from Afghanistan
Working paper **2022**, with D Burde, R Deitz, and C Samii

Political Communication: Insights from Field Experiments
Oxford Handbook of Political Communication **2017, 1-15**, with D P Green and A Carnegie

Are Ballot Initiative Outcomes Influenced by Independent Groups? A Precinct-Randomized Experiment
Political Behavior **2015, 37(3): 1-27**, with T Rogers

Priming Under Fire: Reverse Causality and the Classic Media Priming Hypothesis
Journal of Politics **2014, 76(2): 581-592**, with A Hart

Do Community-Based Voter Mobilization Campaigns Work Even in Battleground States? Evaluating the Effectiveness of MoveOn's 2004 Outreach Campaign
Quarterly Journal of Political Science **2008, 3: 63-82**, with D P Green

Assessment of Learning Outcomes and Social Effects of Community-Based Education in Afghanistan.
New York University, with D Burde, and C Samii

- Phase Two Endline Report. **2019**, with M Lisiecki and O Okhidoi
- Phase Two Baseline Report. **2018**
- Phase One Outcomes Report. **2016**
- Phase One Baseline Report. **2015**

COURSES TAUGHT

Department of Political Science, UNIVERSITY OF CALIFORNIA, BERKELEY

- Design-based Causal Inference (PS 239)
- Quantitative Analysis in Political Research (PS 231A)
- Research Workshop in Quantitative Modeling (PS 291F)
- Public Opinion (PS 161)

Department of Applied Statistics, Social Science and Humanities, NEW YORK UNIVERSITY

- Survey Research Methods (RESCH-GE 2139)
- Large Databases in Education Research (E10.2110)
- Introductory Statistics (RESCH-GE 1085)

PROGRAMMING

Advanced R, intermediate SQL and some experience with Python