Mikaela Meyer

Pittsburgh, PA
✆ (219)241-2922
✉ mikaela@stat.cmu.edu
🖥 https://mikaelameyer.netlify.app

Education

2023 (Expected) **Ph.D., Statistics and Public Policy**, *Carnegie Mellon University*.
GPA: 4.0/4.0
Completing coursework and all milestones in both the statistics and public policy Ph.D. programs in addition to thesis research requirements

2020 **M.S., Statistics**, *Carnegie Mellon University*.
Project: Racial Disparities in Police Use of Force: A Variance Decomposition Approach
Advisor: Amelia Haviland

2018 **B.S., Mathematical Statistics and Applied Statistics**, *Purdue University*.
GPA: 3.99/4.0
Graduated with Highest Distinction, Honors College Graduate
Minor in Political Science

Research Interests

* Racial disparities in policing * Criminal justice * Fairness, accountability and transparency (FAccT) in machine learning * Validating models with dependent data * Flood risk prediction

Technical Skills

Proficient R, Python, SQL

Familiar LaTeX, Git, SAS, Stata, Tableau

Publications

Peer-reviewed articles

Meyer, M., Horowitz, A., Marshall, E., & Lum, K. (2022). "Flipping the Script on Criminal Justice Risk Assessment: An actuarial model for assessing the risk the federal sentencing system poses to defendants". *Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency* (FAccT '22).

Meyer, M., Hassafy, A., Lewis, G., Shrestha, P., Haviland, A. M., & Nagin, D. S. (2022). "Changes in Crime Rates During the COVID-19 Pandemic". *Statistics and Public Policy*, 9:1, 97-109.

Reinhart, A., Evans, C., Luby, A., Orellana, J., **Meyer, M.**, Wieczorek, J., Elliott, P., Burckhardt, P., & Nugent, R. (2022). "Think-aloud interviews: A tool for exploring student statistical reasoning".*Journal of Statistics and Data Science Education*.

Meyer, M. R., & Johnson, D. R. (2019). "Variability of Best-Estimate Flood Depth Return Periods in Coastal Louisiana". *Journal of Marine Science and Engineering*, 7(5), 145. doi:10.3390/jmse7050145

Manchanda, S., **Meyer, M.**, Li, Q., Liang, K., Li, Y., & Kong, N. (2018). "On Comprehensive Mass Spectrometry Data Analysis for Proteome Profiling of Human Blood Samples". *Journal of Healthcare Informatics Research*, 2(3), 305-318.

Book chapters

Betz, M., Boyd, P., Damone, E., DeSantiago, C., Gauen, K., Lothrop, K., **Meyer, M.**, Mori, K., Peterson, A., and Ward, M. D. (alphabetical) "Research Experiences in the Statistics Living Learning Community". Forthcoming in *Future of Undergraduate Research in Mathematical Sciences*.

Non-Academic Publications

Goff, P. A., Haviland, A. M., Lloyd, T., **Meyer, M.**, and Warren, R. (alphabetical) (2020). "How racism amplifies Covid-19 risk for everyone". *Vox*.

Government reports

Gambler, R., Matheson, T., Alexander, D., Burdick, K., Chaidez, L., Donovan, K., Fejfar, M., Gilley, S., Hatscher, C., Hauswirth, E., **Meyer, M.**, Najmi, S., Reeves, K., & Tessin, J. (2019) "BORDER SECURITY: DHS Should Improve the Quality of Unlawful Border Entry Information and Other Metric Reporting". *U.S. Government Accountability Office*. GAO-19-305.

Research Experience

2020-Present **Graduate Researcher**, Carnegie Mellon University

Advisors: Alexandra Chouldechova and Kristian Lum

- Funded by the MacArthur Foundation to explore validation strategies for risk assessment algorithms in the pretrial and child welfare settings

2019-Present **Graduate Researcher**, Carnegie Mellon University

Advisor: Amelia Haviland

- Developing hierarchical models to decompose variance in racial discrepancies in police use of force into census tract and precinct components in a city
- Delivering results to police department through collaboration with Center for Policing Equity at Yale University

2018-2020 **Member, Teaching Statistics Research Group**, Carnegie Mellon University

- Created an assessment for undergraduate introductory statistics courses and assessing questions based on think-aloud interviews
- Used cognitive task analysis and think-aloud interviews to better understand student misconceptions in a statistical inference class

2019-2020 **Graduate Research Assistant**, Center for Statistics and Applications in Forensic Evidence (CSAFE), Carnegie Mellon University

Advisor: Robin Mejia

- Aided in the implementation of blind proficiency tests for forensic analysts at the Allegheny County Office of the Medical Examiner

2016-2018	**Undergraduate Fellow**, Purdue Policy Research Institute

Advisors: Laurel Weldon, David Johnson, and Caitlin Surakitbanharn

- Drafted policy briefs with other undergraduates from a variety of disciplines about subjects such as personal drone regulations, autonomous vehicle deployment, and flood risk in coastal Louisiana
- Conducted sensitivity analyses of the Coastal Louisiana Risk Assessment (CLARA) model

2015-2018	**Research Assistant**, Purdue University

Advisors: Dwaine Jengelley and Aaron Hoffman

- Conducted sentiment analysis of newspaper articles using Lexicoder software
- Wrote an R script to scrape political cartoons from gocomics.com
- Collected and analyzed survey data from journalists at the Society of Professional Journalists Conference in September 2018
- Taught the PIs and other students in the research group how to use R for basic statistical analyses

2015-2016	**Member of NSF Statistics Living-Learning Community**

Advisors: Mark Ward and Frederi Viens

- Received funding from NSF Grant No. 1246818 to conduct research about modeling Lake Chad's hydrology through Bayesian methodologies

Presentations and Posters

Aug. 2022	Topic-Contributed Presentation. **Meyer, M.**, Hassafy, A., Lewis, G., Shrestha, P., Haviland, A. M., and Nagin, D. S. "Changes in Crime Rates During the COVID-19 Pandemic." Joint Statistical Meetings, Washington, D.C.
June 2022	Presentation. **Meyer, M.**, Horowitz, A., Marshall, E., and Lum, K. "Flipping the Script on Criminal Justice Risk Assessment: An actuarial model for assessing the risk the federal sentencing system poses to defendants." ACM Conference on Fairness, Accountability, and Transparency (FAccT), Seoul, South Korea.
May 2022	Invited Presentation. **Meyer, M.**, Hassafy, A., Lewis, G., Shrestha, P., Haviland, A. M., and Nagin, D. S. "Changes in Crime Rates During the COVID-19 Pandemic." COVID Information Commons Research Lightning Talks Series.
Aug. 2022	Invited Presentation. **Meyer, M.** and Chouldechova, A. "Validation Strategies for Risk Assessment Instruments." RAND Statistics Group Seminar Series.
June 2021	Presentation. **Meyer, M.** and Johnson, D. "Analyzing the Variability of Best-Estimate Coastal Flood Depth Return Periods in Louisiana". State of the Coast. Virtual conference
Nov. 2020	Presentation. **Meyer, M.** and Haviland, A. "Racial Disparities in Policing: A Variance Decomposition Approach". American Criminology Society Annual Meeting. *Conference canceled due to COVID-19*
Aug. 2020	Presentation. **Meyer, M.** and Haviland, A. "Racial Disparities in Policing: A Variance Decomposition Approach". Joint Statistical Meetings. Virtual conference
May 2020	Poster. **Meyer, M.**, J. Orellana, and A. Reinhart. "Using Cognitive Task Analysis to Uncover Misconceptions in Statistical Inference Courses". Electronic Conference on Teaching Statistics (eCOTS).

Feb. 2020	Invited Guest Lecture. **Meyer, M.**. "Designing and Conducting Surveys: Two Research Examples". Delivered to 36-303 Sampling, Survey, and Society at Carnegie Mellon University. Pittsburgh, PA
Dec. 2019	Webinar. **Meyer, M.** and Evans, C. "Introducing think-aloud interviews as a tool to explore student statistical reasoning". Part of the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) webinar series.
Dec. 2019	Presentation (by Johnson, D.). Johnson, D., and **Meyer, M.** "Natural variability of best-estimate coastal flood depth return periods". Society for Risk Analysis Annual Meeting. Arlington, VA.
July 2019	Presentation and Poster. **Meyer, M.**, Orellana, J., and Reinhart, A. "Using Think-Aloud Interviews and Cognitive Task Analysis to Identify Misconceptions in Undergraduate Statistics Education". Joint Statistical Meetings. Denver, CO
May 2019	Breakout Session. Reinhart, A., Burckhardt, P., Elliott, P. W., Evans, C., Luby, A., **Meyer, M.**, Orellana, J., Yurko, R., Weinberg, G., Wieczorek, J., & Nugent, R. "Using think-aloud interviews to assess student understanding of statistics concepts". US Conference on Teaching Statistics. State College, PA
April 2018	Presentation. Hoffman, A., **Meyer, M.**, Malik, P., Balcazar, P., Hennes, E., Jengelley, D., & Walsh, S. "How anxiety about Donald Trump influences news reporting". Midwest Political Science Association Conference. Chicago, IL
April 2018	Poster. **Meyer, M.** & Johnson, D. R. "Variability Analysis of Historic Flood Depth Returns in Coastal Louisiana". Purdue Undergraduate Research Symposium. West Lafayette, IN
April 2018	Poster. Ball, J., **Meyer, M.**, Bunce, B., & Johnson, D. R. "Parametric Sensitivity Analysis of a Coastal Louisiana Flood Risk Model". Purdue Undergraduate Research Symposium. West Lafayette, IN
Nov. 2016	Presentation. Manchanda, S., **Meyer, M.**, Li, Q., Liang, K., Li, Y., & Kong, N. (2018). "On Comprehensive Mass Spectrometry Data Analysis for Proteome Profiling of Human Blood Samples". INFORMS. Nashville, TN. *Finalist in Operation Research Undergraduate Paper Competition*
April 2016	Presentation. Jengelley, D., Duncan, N., **Meyer, M.**, & Mroczek, C. "Framing Caribbean Integration: A Content Analysis of Elites' Views on Regionalism". Midwest Political Science Association Conference. Chicago, IL

Awards and Honors

2022	**Invited to FAccT Doctoral Consortium**, ACM Conference on Fairness, Accountability, and Transparency
2020	**NSF Graduate Research Fellowship (NSF GRFP)**, National award
2020	**Gertrude M. Cox Scholarship**, American Statistical Association
2018	**Phi Beta Kappa**, Purdue University
2016-2018	**Stamps Family Foundation Scholarship** (full tuition and room/board scholarship), Purdue University
2017	**Truman Scholarship**, National award
2017	**Marshall Scholarship Finalist**, National award
2016	**INFORMS Undergraduate Operations Research Prize Finalist**, National award
2016	**Mu Sigma Rho Statistics Honor Society**, Purdue University
2016	**Outstanding Sophomore in Statistics**, Purdue University

Work Experience

Summer 2020   **Statistics Summer Associate**, RAND Corporation
- Automated merging of multiple structure data sets for use in the Coastal Louisiana Flood Risk Assessment (CLARA) model's damage calculations
- Calculated future flood return period estimates based on projections from three regional climate models

Summer 2018   **Applied Research and Methods Intern**, Government Accountability Office
- Conducted a literature review to better understand the methods used by the Department of Homeland Security to estimate the number of migrants crossing the border illegally
- Summarized R scripts so the team of statisticians and non-statisticians could learn what exact steps DHS took to calculate border security metrics

Summer 2017   **Emerging Leaders Program Data Science Intern**, Nielsen
- Created a scorecard using Python's Pandas library to evaluate a new data integration product

Teaching Assistantships

Summer 2019   Statistical Learning Summer Workshop (Masters/Ph.D.), Carnegie Mellon University

Guided groups of non-statistics graduate students through lessons in learning to code in R, exploratory data analysis, and statistical learning methods

Fall 2018   Statistical Graphics and Visualization (Undergrad), Carnegie Mellon University

Spring 2018   Differential Equations (Undergrad), Purdue University

Grants

January 2019   **GuSH Crosswalk Seed Grant** (Carnegie Mellon University)

Grant title: "Using Think-Aloud Interviews and Cognitive Task Analysis to Identify Misconceptions in Undergraduate Statistics Education"

Josue Orellana and Mikaela Meyer, $1,000

Media

2022   "New risk assessment tool for criminal justice seeks to predict risk of harm to defendants, reduce sentencing disparities", Heinz College. Read here.

2022   "In first year of COVID-19 pandemic and after George Floyd's death, rates of some crimes rose while others fell", Heinz College. Read here.

2018   "Statistics Student Awarded Truman Scholarship", Amstat News. Read here.

2017   "Commitment to Public Service Earns Statistics Junior Prestigious Truman Scholarship", Purdue College of Science. Read here.

Leadership and Involvement

2021-   **Student Representative**, Carnegie Mellon Core Competencies Committee on Information and Data Literacy

2020, 2021	**WiDS Ambassador, Co-Organizer**, Women in Data Science Pittsburgh Conference
2020-	**NSF GRFP Mentor**, Dear Future Colleague
2020-	**Mentor**, CMU Statistics & Data Science Ph.D. Student Mentorship Program
2019-	**Statistics Department Representative**, CMU Graduate Student Assembly
2018-	**Representative**, CMU Statistics Student Advisory Committee
2018-	**Mentor**, CMU Statistics Matched Pairs Mentor Program
2018-	**President, Vice President**, CMU Women in Statistics
2019-2021	**Chair of Subcommittee on Outreach and Engagement**, CMU Graduate Student Assembly External Affairs Committee

- Organized on-campus voter registration drives for National Voter Registration Day 2019

2019-2020	**Student Representative**, CMU Statistics Wellness Network
2015-2018	**President**, Purdue College Democrats
2015-2018	**Mentor**, Purdue Honors College Mentor Program
2016-2018	**Co-Captain**, Purdue Debate Team

Graduate Coursework

- Intermediate Statistics
- Regression Analysis
- Advanced Statistics Theory I
- Statistical Machine Learning
- Advanced Data Analysis
- Microeconomics
- Advanced Statistics Theory II
- Statistical Computing
- Foundations of Causal Inference
- Modern Causal Inference
- Fairness, Explainability, and Accountability in Machine Learning (audited)
- Human Judgement and Decision Making

Professional Memberships

- American Statistical Association
- Caucus for Women in Statistics