JESSE WHEELER

Assistant Professor
Department of Mathematics and Statistics
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Education

PhD in Statistics *2020–2025*
University of Michigan, Ann Arbor, MI.
Thesis Title: "Innovations in Likelihood-Based Inference for State Space Models"
Thesis Advisor: Edward Ionides

B.S. in Mathematics, Statistics, Minor in Computer Science *2016–2020*
Utah State University (USU), Logan, UT.
Graduated as valedictorian of the College of Science, class of 2020

Research

Interests

Time Series Analysis
Mechanistic Models
Statistical Practice and Data Science
Modeling Dynamic Ecological Systems

Peer Reviewed Publications

Wheeler, J., Ionides, E. L. (2025). Revisiting Inference for ARMA Models: Improved Fits and Superior Confidence Intervals. *PLOS ONE*, 20(10): e0333993. doi:10.1371/journal.pone.0333993

Bretó, C., Wheeler[1], J., King, A., Ionides, E. L. (2025). panelPomp: Analysis of Panel Data via Partially Observed Markov Processes in R. *The R Journal*, 17, 180-199. doi:10.32614/RJ-2025-009.

Ionides, E. L., Ning, N. and Wheeler, J. (2024). An iterated block particle filter for inference on coupled dynamic systems with shared and unit-specific parameters. *Statistica Sinica*, 34, 1241-1262. doi:10.5705/ss.202022.0188.

Wheeler, J., Rosengart, A., Jiang, Z., Tan, K., Truetle, N., Ionides, E. (2024). Informing policy via dynamic models: Cholera in Haiti. *PLOS Computational Biology*, 20(4), e1012032. doi:10.1371/journal.pcbi.1012032

Wagstaff, J., Bean, B., Wheeler, J., Maguire, M., Sun, Y. (2024). Adaptive Mapping of Design Ground Snow Loads in the Conterminous United States. *Journal of Structural Engineering*, 150(1), 04023193. doi:10.1061/JSENDH.STENG-12396

Wheeler, J., Bean, B., Maguire, M. (2022). Creating a Universal Depth-to-Load Conversion Technique for the Conterminous United States Using Random Forests. *Journal of Cold Regions Engineering, 36(1), 04021019.* doi:10.1061/(ASCE)CR.1943-5495.0000270

[1]Corresponding Author

White, T., Wheeler, J., Lindstrom, C., Christensen, R., Moon, K. (2021). GPS-Denied Navigation Using SAR Images and Neural Networks. *ICASSP 2021 - 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. Toronto, ON, Canada, 2021, pp. 2395-2399, doi:10.1109/ICASSP39728.2021.9414421.

Non-Refereed Publications

Bean, B., Maguire, M., Sun, Y., Wagstaff, J., Al-Rubaye, S., Wheeler, J., Jarman, S., Rogers, M. (2021). The 2020 National Snow Load Study. *Utah State University*. doi:10.26077/200k-pr86.

Ionides, E. L., Wheeler, J. (2024). Review 2: "Efficacy, Public Health Impact and Optimal Use of the Takeda Dengue Vaccine." Rapid Reviews Infectious Diseases. doi:10.1162/2e3983f5.1f0cb1f4.

Working Papers

Wheeler, J., Abkemeier, A. A., Ionides, E. L. (2025). Iterating Marginalized Bayes Maps for Likelihood Maximization. *In preperation for the Journal of the American Statistical Association*.

Yang, B., Wheeler, J., King, A., Duffy, M., Ionides, E. L. (2025+). Mechanistic Models for Panel Data: Analysis of Ecological Experiments with Four Interacting Species. *Submitted to the Journal of the American Statistical Association, Case Studies*.

Seminars, Presentations, and Workshops

2025 The Geological Society of America, Connects 2025 (Poster). San Antonio, TX.

2024 Modelling and inference for pandemic preparedness. Isaac Newton Institute, Cambridge, England.

2024 Michigan Student Symposium for Interdisciplinary Statistical Sciences. Ann Arbor, MI.

2023 Bayes Comp 2023, Satellite Event: Bayesian Inference of Epidemics. Levi, Finland.

2023 Models of Infectious Disease Agent Study (MIDAS) Network Annual Meeting (Poster). Atlanta, GA.

2022 JSM 2022. Washington D.C.

2020 National Conference on Undergraduate Research. Online (COVID-19).

2020 USU Student Research Symposium (Poster). Logan, UT.

2020 Utah Conference on Undergraduate Research (Poster). Logan, UT.

Awards

StatsForward Fellowship, The American Statistical Association. *September 2025*

Best Oral Presentation, MSSIS 2024, University of Michigan. *2024*
Award amount: $200

Rackham Graduate Student Research Grant, University of Michigan *2024*
Award amount: $2500

Honorable Mention NSF GRFP *2022*

Rackham Merit Fellowship, University of Michigan *2020–2025*
Award amount: Three years of PhD student funding.

Valedictorian, USU College of Science *2020*

URCO Grant, USU *2020*
Award amount: $1000

Teaching

Idaho State University *2025–present*

Math 4450/5450, Fall 2025 (Mathematical Statistics I)
Math 3350, Fall 2025 (Calculus-based introduction to statistics)

University of Michigan *2020–2025*

Stats 604, *Lab Instructor* (Statistical Practice)
Stats 531, *Office hours / Grading* (Modeling and Analysis of Time Series Data)
Datasci 415, *Lab Instructor* (Introduction to Statistical Learning)
Stats 306, *Lab Instructor* (Introduction to Statistical Computing)
Summer Math Boot Camp (Calculus, Linear Algebra, Probability, Computing)
Workshop *Developing a personal academic website* (Student Seminar Series)
Tutor, *Master's level Rackham Merit Fellows* (Probability and Regression)

SISMID (2025). Instructor for a short course on *Simulation based inference for Epidemiological Dynamics* at the Summer Institute in Statistics Modeling in Infectious Diseases (SISMID). Emory University, Atlanta, Georgia.

SISMID (2022). Instructor for a short course on *Simulation based inference for Epidemiological Dynamics* at the Summer Institute in Statistics Modeling in Infectious Diseases (SISMID). University of Washington, Seattle.

Utah State University *2017–2020*

Math 0995, *Recitation Leader* (Remedial Algebra)
Math 1210, *Recitation Leader* (Introductory Calculus)
Math 1220 *Recitation Leader* (Calculus II, sequences and series)
Stats 1040, *Recitation Leader*, (Introductory Statistics, non-Calculus based)

Undergraduate Research Projects Mentored

Peter Yang. Applications of Partially Observed Markov Processes with phylogenetic data. Honors thesis, 2025.

Weizhe Sun. Model Based Inference of Stochastic Volatility via Iterated Filtering. Honors thesis, 2024.

Zuyuan Han. Signature Methods in Variance Swap Pricing. Honors thesis, 2023.

Bo Yang. Analysis of Panel Data via Mechanistic Models in a PanelPOMP Framework. Honors thesis, 2023.

Kevin Tan and Noah Treutle. On the Transmissibility of Cholera During the 2010–2019 Haiti Cholera Epidemic. Research project, 2022.

Awards

Outstanding Graduate Student Instructor Team Award. *2025*
Outstanding Undergraduate Recitation Leader *2019*
USU Mathematics and Statistics Department

Service

Computing Club Committee Member, UM Statistics Department *2022–Present*
Committee Chair *2023–Present*

Peer Reviews: PLOS Computation Biology, Nature Communications, Rapid Reviews Infectious Diseases, Bulletin of Mathematical Biology

President, USU Data Science Club *2019–2020*

Software

Author and maintainer for the R package **arima2**, available on CRAN. As of October 1, 2024, this package has been downloaded more times than 79.7% of all packages on CRAN since it was first published (October 5, 2023).

Primary contributor and current maintainer of the R package **panelPomp**, available on CRAN.

Core developer of the Python package **pypomp**, available on PyPI.

Contributor to open source R packages **pomp** and **spatPomp**, both available on CRAN.

Consulting

Campfire Interactive, time series modeling. *Nov 2024–Jan 2025*