

# JESSE WHEELER

Assistant Professor  
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## Education

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### 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

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### 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<sup>1</sup>, 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

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<sup>1</sup>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 preparation 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

<b>StatsForward Fellowship</b> , The American Statistical Association.	<i>September 2025</i>
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<b>Best Oral Presentation</b> , MSSIS 2024, University of Michigan.	<i>2024</i>
<i>Award amount: \$200</i>	

<b>Rackham Graduate Student Research Grant</b> , University of Michigan	<i>2024</i>
<i>Award amount: \$2500</i>	

<b>Honorable Mention NSF GRFP</b>	<i>2022</i>
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<b>Rackham Merit Fellowship</b> , University of Michigan	2020–2025
<i>Award amount: Three years of PhD student funding.</i>	
<b>Valedictorian</b> , USU College of Science	2020
<b>URCO Grant</b> , USU	2020
<i>Award amount: \$1000</i>	

## Teaching

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<b>Idaho State University</b>	2025–present
<b>Math 4450/5450</b> , Fall 2025	(Mathematical Statistics I)
<b>Math 3350</b> , Fall 2025	(Calculus-based introduction to statistics)
<b>University of Michigan</b>	2020–2025
<b>Stats 604</b> , <i>Lab Instructor</i>	(Statistical Practice)
<b>Stats 531</b> , <i>Office hours / Grading</i>	(Modeling and Analysis of Time Series Data)
<b>Datasci 415</b> , <i>Lab Instructor</i>	(Introduction to Statistical Learning)
<b>Stats 306</b> , <i>Lab Instructor</i>	(Introduction to Statistical Computing)
<b>Summer Math Boot Camp</b>	(Calculus, Linear Algebra, Probability, Computing)
<b>Workshop</b> <i>Developing a personal academic website</i>	(Student Seminar Series)
<b>Tutor</b> , <i>Master’s level Rackham Merit Fellows</i>	(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.

<b>Utah State University</b>	2017–2020
Math 0995, <i>Recitation Leader</i> (Remedial Algebra)	
Math 1210, <i>Recitation Leader</i> (Introductory Calculus)	
Math 1220 <i>Recitation Leader</i> (Calculus II, sequences and series)	
Stats 1040, <i>Recitation Leader</i> , (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

<b>Outstanding Graduate Student Instructor Team Award.</b>	<i>2025</i>
<b>Outstanding Undergraduate Recitation Leader</b>	<i>2019</i>
<i>USU Mathematics and Statistics Department</i>	

## Service

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<b>Computing Club Committee Member</b> , UM Statistics Department	<i>2022–Present</i>
<b>Committee Chair</b>	<i>2023–Present</i>
<b>Peer Reviews:</b> PLOS Computation Biology, Nature Communications, Rapid Reviews Infectious Diseases, Bulletin of Mathematical Biology	
<b>President, USU Data Science Club</b>	<i>2019–2020</i>

## Software

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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

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Campfire Interactive, time series modeling.	<i>Nov 2024–Jan 2025</i>
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