

# Nathan B Wikle

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## Education

Ph.D. Statistics, Pennsylvania State University, 2021.

Dissertation: *Mechanistic models for spatial and spatio-temporal data.*

Advisor: Ephraim Hanks.

B.S. Mathematics, Truman State University, 2016.

Minors: Computer Science, Statistics, and Mathematical Biology.

Honors: *Summa cum laude*, Departmental Honors in Mathematics.

## Academic Employment

Postdoctoral Scholar, University of Texas at Austin, August 2021 – present.

Supervisor: Corwin Zigler.

## Publications

### *Journal Articles*

Tran, T.N., **Wikle, N.B.**, Hanks, E.M., Boni, M.F. [and 10 others]. (*Accepted*). SARS-CoV-2 attack rate and population immunity in southern New England, March 2020 to May 2021. *JAMA Network Open*. medRxiv: <https://doi.org/10.1101/2021.12.06.21267375>

**Wikle, N.B.**, Hanks, E.M., Henneman, L.R.F., and Zigler, C.M. (2022) A mechanistic model of annual sulfate concentrations in the United States. *Journal of the American Statistical Association*. <https://doi.org/10.1080/01621459.2022.2027774>

**Wikle, N.B.**, Tran, T.N., Hanks, E.M., Boni, M.F. [and 12 others]. (2022) SARS-CoV-2 epidemic after social and economic reopening in three US states reveals shifts in age structure and clinical characteristics. *Science Advances*. **8**(4). <https://www.science.org/doi/10.1126/sciadv.abf9868>

Tran, T.N., **Wikle, N.B.**, Hanks, E.M., Boni, M.F. [and 11 others]. (2021) Optimal SARS-CoV-2 vaccine allocation using real-time seroprevalence estimates in Rhode Island and Massachusetts. *BMC Medicine*, **19** (162). <https://doi.org/10.1186/s12916-021-02038-w>

Wagner, T., Lottig, N.R. [and 16 others, including **Wikle, N.B.**]. (2020) Increasing accuracy of lake nutrient predictions in thousands of lakes by leveraging water clarity data. *Limnology and Oceanography Letters*. **5**(2), 228–235. <https://doi.org/10.1002/lol2.10134>

**Wikle, N.B.**, Hanks, E.M., and Hughes, D.P. (2019) A dynamic individual-based model for high-resolution ant interactions. *Journal of Agricultural, Biological, and Environmental Statistics*. **24**(4), 589–609. <https://doi.org/10.1007/s13253-019-00363-5>

## *Preprints and Papers Under Review*

**Wikle, N.B.**, Tran, T.N., Hanks, E.M., Boni, M.F. [and 12 others]. (2022+) A negative binomial process model of the 2020–2021 COVID-19 epidemic in Rhode Island. *In preparation*.

**Wikle, N.B.**, Zigler, C.M. (2022+) Estimating causal effects under interference and a probabilistic exposure model. *In preparation*.

## **Presentations**

### *Talks*

“Estimation of causal effects under interference and a probabilistic exposure model,” Joint Statistical Meetings, Washington, DC. *Invited*.

“Asthma and air pollution: estimating the effect of power plant interventions on asthma-related emergency department visits in Texas,” Matsui Research Group, Austin, TX. May 2022. *Invited*.

“Constructing mechanistic spatial models from Ornstein-Uhlenbeck processes,” CMStatistics, London. December 2021. *Invited*.

“A negative binomial process model of the 2020–2021 COVID-19 epidemic in Rhode Island,” Joint Statistical Meetings, Seattle, WA. August 2021.

“Mechanistic models for spatial data from Ornstein-Uhlenbeck processes,” Joint Statistical Meetings, Philadelphia, PA. August 2020. *Invited*.

“Bayesian selection of tuning parameters,” Joint Statistical Meetings, Denver, CO. July 2019.

“A dynamic individual-based model of ant interaction events,” Joint Statistical Meetings, Vancouver. July 2018.

### *Posters*

“A dynamic individual-based model of ant interaction events”

- Rao Prize Conference, Pennsylvania State University, University Park, PA. May 2019.
- Statistics for the Environment (ENVR) Workshop, Asheville, NC. October 2018.

## **Awards/Honors**

J. Keith Ord Scholarship for Research in Spatial and Environmental Statistics, Pennsylvania State University, 2020.

JSM Student Paper Award: Honorable Mention, Section on Statistics in the Environment, 2020.

NSF Graduate Research Fellowship: Honorable Mention, National Science Foundation, 2018.

Robert W. and Ann M. Emery Endowed Scholarship, Pennsylvania State University, 2017.

Paul Berg and Daniel J. Larson Distinguished Graduate Fellowship, Pennsylvania State University, 2016.

## Teaching Experience

### *Pennsylvania State University*

Stochastic Modeling, Spring 2021.

Experimental Methods for Engineering and the Sciences, Spring 2019.

Last updated: May 16, 2022

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