# Maria E. Kamenetsky, Ph.D., M.S.

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## Education

2022 **Ph.D., Epidemiology**, *University of Wisconsin-Madison*
Department of Population Health Sciences
*Minor*: Computer Sciences
*Dissertation:* Regularized and Multi-Model Methods for Detecting Spatial and Spatio-Temporal Clusters with Applications in Epidemiology
*Advisors*: Ronald Gangnon, Ph.D. (Population Health Sciences; Biostatistics & Medical Informatics)
Jun Zhu, Ph.D. (Statistics)

2016 **M.S., Statistics**, *University of Wisconsin-Madison*
Department of Statistics

2011 **B.A., Economics, Political Science, International Studies**
Comprehensive Honors in Liberal Arts, *University of Wisconsin-Madison.*

## Research Experience

2022–present **Postdoctoral Fellow**, *National Cancer Institute (NCI), National Institutes of Health (NIH)*
Division of Cancer Epidemiology & Genetics (DCEG),
Occupational & Environmental Epidemiology Branch (OEEB)/Biostatistics Branch (BB)
Rockville, MD
Mentors: Alexander Keil, Ph.D. & Paul Albert, Ph.D

- Secured funding (Intramural Research Award (IRA)) from DCEG/NCI/NIH to fund the development of novel Bayesian methods in environmental mixtures.
- Published and presented research spanning spatial statistics, environmental epidemiology, and causal inference.
- Mentored summer students in the Biostatistics Branch.

2022–2024 **Honorary Fellow**, *University of Wisconsin-Madison*
Nelson Institute for Environmental Studies,
Environmental Observation & Informatics Program
Madison, Wisconsin

2016–2022 **Statistical Consultant**, *University of Wisconsin-Madison*

- Consulted with over 139 faculty members, staff scientists, and graduate students in over 25 disciplines with the *CALS Statistical Consulting Lab* (Department of Biometry/College of Agricultural and Life Sciences).
- Provided support in statistical methods, computer programming, data visualization, design of experiments, power analyses, and grant-writing.
- Developed tutorials and provided statistical and programming support to medical students in the *Path of Distinction in Public Health Program* (School of Medicine and Public Health).

2020–2021 **Statistical Consultant**, *Wisconsin Department of Health Services*
Madison, Wisconsin

2017–2018 **Statistical Consultant**, *Madison Water Utility*
Madison, Wisconsin

2016 **Data Science Fellow**, *University of Chicago*, *Center for Data Science & Public Policy*
Eric & Wendy Schmidt Data Science for Social Good Fellowship
Chicago, Illinois

2015 **Graduate Research Assistant**, *University of Wisconsin-Madison*
Center for Demography & Ecology
Madison, Wisconsin

2011-2014 **Research Professional**, *University of Chicago, Accounting Research Center*
University of Chicago Booth School of Business
Chicago, Illinois

## Honors & Awards

2025 Navigating Next Steps (NNS) Leadership and Career Program,
National Cancer Institute

2023 StatsForward Leadership Fellowship,
American Statistical Association

2021 Poster Winner: UW Womens Health And Health Equity Research Lecture & Symposium,
Department of Obstetrics and Gynecology, University of Wisconsin-Madison

2021 RStudio::Global(2021) Diversity Scholar

2020 Robert F. and Jean E. Holtz Center for Science and Technology Studies Conference Grant,
University of Wisconsin-Madison

2020 American Statistical Association (ASA) Wisconsin Chapter Student Virtual Travel Award

2020 Catherine Allen Outstanding Student Poster Award,
Department of Population Health Sciences, University of Wisconsin-Madison

2019 Student Research Travel Grant,
University of Wisconsin-Madison ($1,200)

2016 Outstanding New Student Scholarship,
Department of Population Health Sciences, University of Wisconsin-Madison ($2,000)

## Research Grants

### Active Support

2024-present **Intramural Research Award (IRA) Grant**, NIH/NCI/DCEG ($25,000)
*Title:* "The Role of Mixtures on Bladder Cancer Risk Across Space: An Examination Using Flexible Bayesian Quantile G-Computation"
*Role:* Principal Investigator

### Past Support

2016 **Eric & Wendy Schmidt Data Science for Social Good Fellowship**, ($16,000)
University of Chicago Center for Data Science & Public Policy

## Research Publications

### ***Peer-Reviewed***

13 **Kamenetsky, M.**, Zhu, J., Gangnon, R.E. (2025)"Spatial and Spatio-Temporal Cluster Detection Using Stacking", *Spatial Statistics*, 70 (December), 10.1016/j.spasta.2025.100933.

12 **Kamenetsky, M.**, Keil, A.P. (2025) "(Re-)Match: Adjusting for Matching Factors in Case-Control Studies Can Be Unnecessary or Insufficient", *American Journal of Epidemiology*, 10.1093/aje/kwaf116, PMID: 40481657, *In press*.

11 **Kamenetsky, M.**, Welch, B., Bommarito, P., Buckley, J., O'Brien, K., White, A., McElrath, T., Cantonwine, D., Ferguson, K., Keil, A. (2025) "Partial Effects in Environmental Mixtures - Evidence and Guidance on Methods and Implications", *Environmental Health Perspectives* 133(5), 10.1289/EHP14942, PMID: 40145898.

10 Remigio, R.V., Buller, I.D., Bogel, M.S., **Kamenetsky, M.E.**, Ammons, S., Bell, J.E., Fisher, J.A., Freedman, N.D., Jones, R.R. (2025) "Geographic patterns in wildland fire exposures and county-level lung cancer mortality in the United States", *International Journal of Health Geographics*, 24(8), 10.1186/s12942-025-00394-x, PMID: 40217528.

9 **Kamenetsky, M.**, Bailey, E., Lowry, A., Gangnon, R., Stafeil, B., Hoppe, K. (2024) "The Role of Neighborhood in Individual and Disparity-Level Factors and Birth Weight in Dane County, Wisconsin" *Wisconsin Medical Journal* 123(6): 422-426, PMID: 9908488.

8 He, X., Tomasallo, C., Li, Z., Schultz, A., **Kamenetsky, M.**, Sjodin, A., Botelho, J., Jarrett, J., Meiman, J. (2022) "Fish consumption, awareness of fish advisories, and body burden of contaminants among the Milwaukee urban anglers: A biomonitoring study." *Journal of Toxicology and Environmental Health Sciences* 14(2): 20-35, 10.5897/JTEHS2022.0506

7 **Kamenetsky, M.**, Trentham-Dietz, A., Newcomb, P., Zhu, J., Gangnon, R.E.(2022) "A Flexible Method for Identifying Spatial Clusters of Breast Cancer Using Individual-Level Data." *Annals of Epidemiology* 73: 9-16, 10.1016/j.annepidem.2022.06.006, PMID: 35772615.

6 Gatti, R.C., Reich, P.B., Gamarra, J.G.P., Crowther, T., Hui, C., Morera, A., Bastin, J.F., De-Miguel, S., Nabuurs, G.J., Svenning, J.C., Serra-Diaz, J., Merow, C., Enquist, B., **Kamenetsky, M.** [and 135 others] (2022) "The Number of Tree Species on Earth." *Proceedings of the National Academy of Sciences* 119(6):e2115329119, 10.1073/pnas.2115329119, PMID: 35101981.

5 **Kamenetsky, M.**, Lee, J., Zhu, J., Gangnon, R. (2022) "Regularized Spatial and Spatio-Temporal Cluster Detection." *Spatial and Spatio-Temporal Epidemiology* 41(1877-5845): 100462, 10.1016/j.sste.2021.100462, PMID: 35691644.

4 Lee, J., **Kamenetsky, M.**, Zhu, J., Gangnon, R. (2021). "Clustered spatio-temporal varying coefficient regression model." *Statistics in Medicine.* 40(2): 465-480, 10.1002/sim.8785, PMID: 33103247.

3 **Kamenetsky, M.**, Chi, G., Wang, D., Zhu, J. (2019). "Spatial Regression Analysis of Poverty in R." *Spatial Demography* 7(2-3): 1-35, 10.1007/s40980-019-00048-0, PMID: 31737778.

2 Mallinson, D., **Kamenetsky, M.**, Hagen, E., Peppard, P. (2019). "Subjective sleep measurement: comparing sleep diary to questionnaire." *Nature and Science of Sleep* 11: 197-206, 10.2147/NSS.S217867, PMID: 31686932.

1 Skarlupka, J., **Kamenetsky, M.**, Jewell, K., Suen. G. (2019). "The ruminal bacterial community in lactating dairy cows has limited variation on a day-to-day basis." *Journal of Animal Science and Biotechnology* 10: 66, 10.1186/s40104-019-0375-0, PMID: 31452880

### *Under Review*

1 Keil, A.P., **Kamenetsky, M.** "Bringing spatial confounding into the causal inferential fold."

### *In Progress*

3 **Kamenetsky, M.**, Koutros, Spaur, M., S., Kim, S.D., Karagas, M., Johnson, A., Baris, D., Silverman, D.T., Keil, A.P. "Associations Between a Mixture of Trace Elements and Bladder Cancer Occurrence in the New England Bladder Cancer Case-Control Study: A Study of Possible Reverse Causation."

2 **Kamenetsky, M.**, Kim, S.D., Koutros, S., Karagas, M., Johnson, A., Silverman, D.T., Keil, A.P. "A Flexible Bayesian Quantile G-Computation Approach for Modeling Environmental Mixtures Over Space."

1 **Kamenetsky, M.**, Kim, S.D., Keil, A.P., Albert, P. "A Latent Spatial Modeling Approach to Environmental Mixtures."

## Invited Talks

Dec. 2025 — Integrating Data Science and Spatial Epidemiology to Advance Environmental Cancer Research
**Kamenetsky, M.**
*Yale School of Public Health* — *New Haven, CT*

Aug. 2025 — A Flexible Bayesian Quantile G-Computation Approach for Modeling Environmental Mixtures Over Space
**Kamenetsky, M.**
*Joint Statistical Meetings (JSM)* — *Nashville, TN*

Jul. 2025 — Bayesian Quantile G-Computation: A Flexible Mixtures Approach to Spatial Analysis
**Kamenetsky, M.**
Geographical Analysis Working Group
*National Cancer Institute (NCI)*
*National Institutes of Health (NIH)* — *Virtual*

Dec. 2023 — Spatial Methods in Cluster Detection and Environmental Mixtures
**Kamenetsky, M.**
Office of Biostatistics Research (OBR)
*National Heart, Lung, & Blood Institute (NHLBI)*
*National Institutes of Health (NIH)* — *Rockville, MD*

Oct. 2023 — Spatial Methods in Cluster Detection and Environmental Mixtures
**Kamenetsky, M.**
SLAM (Survival, Longitudinal, and Multivariate Data) Working Group
*Johns Hopkins University* — *Baltimore, MD*

Aug. 2023 — Regularized and Multi-Model Methods for Spatial and Spatio-Temporal Cluster Detection
**Kamenetsky, M.**
*Joint Statistical Meetings (JSM)* — *Toronto, Canada*

Aug. 2023 — Regularized Spatial and Spatio-Temporal Cluster Detection: Applications to Breast Cancern
**Kamenetsky, M.**, Lee, J., Zhu, J., Gangnon, R.
*International Conference on Econometrics and Statistics (EcoSta)* — *Tokyo, Japan (Hybrid)*

Jun. 2023 — Partial Effects in Environmental Mixtures: Guidance on Methods, Assumptions, and Implications
**Kamenetsky, M.**, Keil, A.
Environmental Mixtures Working Group
*National Institute of Environmental Health Sciences (NIEHS)*
*National Institutes of Health (NIH)* — *Virtual*

Jan. 2023 — Novel Spatial Methods in Cancer Surveillance and Environmental Mixtures
**Kamenetsky, M.**
Department of Population Health Sciences
*University of Wisconsin-Madison* — *Madison, WI*

Jun. 2022 — Quantifying wildfire smoke exposure in California school children
**Kamenetsky, M.**, Velasquez, E., Kiang, M.
*Society for Epidemiologic Research (SER) Annual Meeting* — *Chicago, IL*

Mar. 2022 — Spatial and Spatio-Temporal Clustering
**Kamenetsky, M.**

Toronto Data Workshop
*University of Toronto* *Virtual*

Dec. 2021 Spatial and Spatio-Temporal Cluster Detection: Methods and Applications
**Kamenetsky, M.**
Keck School of Medicine - Environmental Health Division
*University of Southern California* *Virtual*

## Contributed Oral Presentations

* indicates presenter.

Jun. 2025 The Association Between Metal and Metalloids and Bladder Cancer Risk in the New England Bladder Cancer Study
**Kamenetsky, M.***
*Society for Epidemiologic Research (SER) Annual Meeting* *Boston, MA*

Aug. 2024 A Latent Spatial Model for Predicting a (Semi-)Metals Mixture in Private Wells
**Kamenetsky, M.***, Kim, S.D., Albert, P., Keil, A.P.
*International Society for Environmental Epidemiology (ISEE)* *Santiago, Chile (Hybrid)*

Aug. 2022 Cell-Wise Uncertainty Quantification of Spatial Clusters
**Kamenetsky, M.***, Zhu, J., Gangnon, R.
*Joint Statistical Meeting (JSM)* *Washington, DC*

Jun. 2022 Detecting Spatial and Spatio-Temporal Clusters of Disease Using Stacking
**Kamenetsky, M.***, Zhu, J., Gangnon, R.
*Society for Epidemiologic Research (SER) Annual Meeting* *Chicago, IL*

Mar. 2021 Identifying Spatial Clusters of Breast Cancer Risk: A Lasso Approach to the Wisconsin Women's Health Study
**Kamenetsky, M.***, Trentham-Dietz, A., Newcomb, P., Zhu, J., Gangnon, R.
*ENAR Spring Meeting* *Virtual*

Dec. 2020 Identification of Breast Cancer Spatial Structures Based on the Wisconsin Womens Health Study
**Kamenetsky, M.***, Trentham-Dietz, A., Newcomb, P., Gangnon, R.
*Society for Epidemiologic Research (SER) Annual Meeting* *Virtual*

Aug. 2020 Detecting Disease Clusters Across Space and Time Using Model Averaging
**Kamenetsky, M.***, Gangnon, R.
*Joint Statistical Meetings (JSM)* *Virtual*

Sep. 2019 Statistical Analysis of Madison Water Utility Main Breaks
**Kamenetsky, M.***, McClure, S.*
*Wisconsin Section of the American Water Works Association* *Madison, WI*

Aug. 2016 Predicting Enforcement of Pollution and Hazardous Waste Violations in New York State
Potash, E., Jin, J., **Kamenetsky, M.***, Magee, D., Van der Boor, P., Ghani, R.
*Data Science for Social Good Conference* *Chicago, IL*

## Poster Presentations

* indicates presenter.

Jun. 2025 Old Tools to Address Persistent Problems: Assessing Health Disparities and Differences with Attributable Fractioms
Keil, A.*, **Kamenetsky, M.**, Spaur, M., Madrigal, J.M., Robinson, W.R.
*Society for Epidemiologic Research* *Boston, MA*

Jun. 2024 Partial Effects in Environmental Mixtures - Guidance on Methods, Assumptions, and Implications
**Kamenetsky, M.**, Welch, B., Bommarito, P., Buckley, J., O'Brien, K., White, A., McElrath, T., Cantonwine, D., Ferguson, K., Keil, A.*
*Society for Epidemiologic Research (SER)* *Portland, OR*

Jun. 2024 The Power of Mixtures
Keil, A.*, **Kamenetsky, M.**, Choi, G., Jones, R.R., Buckley, J.P.
*Society for Epidemiologic Research (SER)* *Portland, OR*

Mar. 2024 Urinary and Fecal Metal Concentrations Affect Adult Human Gut Microbiome Composition in a Sample of the Wisconsin Population
Teffera, M.Y.*, **Kamenetsky, M.**, Berres, M., Bradfield, C., Malecki, K., Ronnekleiv-Kelly, S.
*Society of Toxicology Meeting* *Salt Lake City, UT*

Feb. 2022 A Spatial Approach to Examining Individual and Disparity-Level Factors and Hypertensive Disorders of Pregnancy
Bailey, E.*, **Kamenetsky, M.**, Lowry, A., Gangnon, R., Hoppe, K.
*Society of Maternal-Fetal Medicine Annual Pregnancy Meeting* *Kissimmee, FL*

Feb. 2022 A Spatial Approach to Examining Individual and Disparity-Level Factors and Birth Outcomes
Lowry, A.*, **Kamenetsky, M.**, Bailey, E., Gangnon, R., Hoppe, K.
*Society of Maternal-Fetal Medicine Annual Pregnancy Meeting* *Kissimmee, FL*

Oct. 2021 A Spatial Approach to Examining Individual and Disparity-Level Factors and Hypertensive Disorders of Pregnancy
Bailey, E.*, **Kamenetsky, M.**, Lowry, A., Gangnon, R., Hoppe, K.
*UW Womens Health And Health Equity Research Lecture & Symposium* *Madison, WI*

Mar. 2020 Space and Space-Time Cluster Detection Using the LASSO
**Kamenetsky, M.***, Lee, J., Zhu, J., Gangnon, R.
*UW-Madison Department of Population Health Sciences Annual Poster Session* *Madison, WI*

Jan. 2020 Space and Space-Time Cluster Detection Using the LASSO
**Kamenetsky, M.***, Lee, J., Zhu, J., Gangnon, R.
*UW-Madison Data Science Hub: Data Science Research Bazaar* *Madison, WI*

Jun. 2019 Space and Space-Time Cluster Detection Using the LASSO
**Kamenetsky, M.***, Lee, J., Zhu, J., Gangnon, R.
*Society for Epidemiologic Research (SER) Annual Meeting* *Minneapolis, MN*

## Teaching Experience

2025 **Co-Instructor**, *Division of Cancer Epidemiology & Genetics (DCEG)*
*National Cancer Institute (NCI)*

"Causal Inference Workshop"

- Co-developed lessons and code as part of the Biostatistics Branch Workshop series.

2023 **Guest Lecturer**, *George Mason University*
"Introduction to Spatial Analysis for Public Health"
- Created materials and presented in *Biostatistics for Public Health II*.

2019-22 **Lecturer**, *University of Wisconsin-Madison*
"Spatial Statistics for Lattice Data" (STAT 679-III)
- Created lecture materials, homework assignments, final project for graduate-level course.
- Recorded lecture videos for hybrid course.
- Supported students as they applied spatial statistics methods to their program capstone projects.

2014 **Teaching Assistant**, *University of Wisconsin-Madison*
"Introductory Statistics" (STAT 301)
- Created weekly discussion materials.
- Graded assignments and provided students with feedback.

2017-2021 **Workshop Instructor**, Data and Software Carpentry (The Carpentries), *University of Wisconsin-Madison*
- Instructor and helper for 17 campus-wide workshops, including *R for Researchers*, *Reproducible Research*, and *Python and Unix Shell*.
- Co-developed the *Health Sciences Data Carpentry Workshop* to meet demand for data literacy among campus health sciences researchers.
- Developed course materials and capstone lesson, recorded videos for asynchronous learning modules for the *Geospatial Carpentry* Workshop.

**Mentoring**

2023-24 Ph.D. Candidate, *Molecular & Environmental Toxicology, University of Wisconsin-Madison*
2023 Summer Volunteer, *Biostatistics Branch, National Cancer Institute*
2020 MS Student, Environmental Observation & Informatics, *University of Wisconsin-Madison*
2020 Women in Scientific Education and Research, *University of Wisconsin-Madison*
2019, 2020 Population Health Sciences Peer Connections, *University of Wisconsin-Madison*

## Service

**Institutional**

2024 DCEG Grants and Grantsmanship: Tips on Applying for Grant Funding
- Panelist

2023 OEEB Branch Concept Study Review, *National Cancer Institute*
- Reviewer

2022-2023 DCEG Fellows' Committee, *National Cancer Institute*
- Biostatistics Branch Representative

2022-2024 DCEG Fellows Writing & Accountability Group, *National Cancer Institute*
- Founder, Facilitator

2020-2022 Population Health Sciences Writing Group, *University of Wisconsin-Madison*
- Organizer

2017-2022 Population Health Sciences Student Organization, *University of Wisconsin-Madison*
- Social Media Chair (2020-21)
- Curriculum Committee Representative (Epidemiology) (2020-21; 2018-19)
- Admissions Committee Representative (2019-20)
- Social Chair (2017-18)

**Reviewer**

*International Journal of Health Geographics*
*Statistics in Medicine*
*American Journal of Epidemiology*

*The R Journal*
*Computational Statistics and Data Analysis*
*Environmental Health Perspectives*
*Annals of Epidemiology*
*BMC Public Health*
*Computational Statistics*
*Cancers*
*Journal of Computational and Graphical Statistics*
*Biostatistics*

**Professional**

2025 Session Chair, Joint Statistical Meetings (JSM) - Nashville
2023 Session Chair, Joint Statistical Meetings (JSM) - Toronto
2023-2024 Diversity & Inclusion Committee Liaison, *Society for Epidemiologic Research (SER)*
2021-2024 Communications Committee, *Society for Epidemiologic Research (SER)*
2021, 2022 Abstract Reviewer, *Society for Epidemiologic Research (SER)*
2021, 2025 Awards Committee, *American Statistical Association (ASA), Statistics in Epidemiology Section*
2021 Session Chair, ENAR Spring Meeting

**Volunteering & Outreach**

2021 R/Medicine 2021
- *Teaching Assistant:* Mapping Spatial Health Data (Instructor: Marynia Kolak) (Aug. 2021)

2021 RStudio::Global(2021) Conference Workshop:
- *Teaching Assistant:* Introduce Yourself Online (Instructor: Alison Hill) (Jan. 2021)

2021 UW-Madison Carpentries Instructor Development Meeting: "Teaching Debugging to Learners", *University of Wisconsin-Madison*
2021 Pathogen Dynamics Lab: "A Crash Course on Git & GitHub", *University of Cambridge*
2021 useR Boston Meetup: "Self-Assessment with `learnR`"
2019 Biostatistics Tutor, *University of Wisconsin-Madison*
2014 Statistics Tutorial Lab, *University of Wisconsin-Madison*

## Software Development

2022 `clustack`, an `R` package for detecting and mapping spatial and spatio-temporal clusters using stacking (maintainer & developer: M. Kamenetsky)
2021 `clusso`, an `R` package for detecting and mapping spatial and spatio-temporal clusters using the LASSO (maintainer & developer: M. Kamenetsky)
2020 `strm`, an `R` package that fits a spatio-temporal regression model based on Chi & Zhu Spatial Regression Models for the Social Sciences (2020) (maintainer & developer: M. Kamenetsky). Available on CRAN.
2020 `coefclust`, an `R` package for detecting spatial clusters in regression coefficients (developer: J. Lee; maintainer: M. Kamenetsky)

## Certification

2018 Certified Instructor - Data, Software, and Library Carpentry (The Carpentries)

## Professional Society Membership

2022–present International Biometric Society (East North American Region)
2018–present Society for Epidemiologic Research
2016–present American Statistical Association

## Additional Training

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|---|---|
| 2025 | Teaching Science in Higher Education<br>National Institutes of Health |
| 2023 | Speaking with the Media<br>National Cancer Institute |
| 2023 | Ethics in Research<br>National Institutes of Health |
| 2023 | Mental Health First Aid Kit<br>National Institutes of Health |
| 2022 | Grant-Writing Workshop<br>National Institute on Aging, NIH |
| 2022 | Grants and Grantsmanship Workshop Series<br>National Cancer Institute, NIH |
| 2022 | Scientists Teaching Science Workshop<br>National Institutes of Health |

## Skills

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|---|---|
| Statistical | R (advanced), SAS (advanced), STATA (intermediate) |
| Scripting | Python (intermediate), Unix Shell (intermediate), C++ (beginner) |
| Databases | PostgreSQL (beginner), MySQL (beginner) |
| Markup | Markdown (advanced), LaTeX (intermediate) |
| VersionControl | Git (intermediate) |
| OS | Unix/Linux (Ubuntu, RedHat), MacOS, MS Windows |
| Other | SaTScan (advanced), QGIS (beginner), Inkscape (intermediate), GIMP (beginner) |
| Languages | Russian (fluent), Spanish (intermediate), English (native language) |