MICHAEL PEARCE

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Reed College, Department of Mathematics and Statistics
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CURRENT APPOINTMENT

Assistant Professor of Statistics (tenure-track)
Reed College, Department of Mathematics and Statistics 2023–Present

EDUCATION

University of Washington, Seattle, WA 2018–2023
Ph.D., Statistics (*Statistics in the Social Sciences* track)
Advisor: Elena A. Erosheva
Dissertation: Methods for the Statistical Analysis of Preferences, with Applications to Social Science Data

St. Olaf College, Northfield, MN 2013–2017
B.A., Mathematics (Statistics concentration)
Summa cum laude, Phi Beta Kappa

SCHOLARLY PUBLICATIONS

Pearce, M. and Erosheva, E.A. (2024+) "Bayesian Rank-Clustering" *arXiv preprint arXiv:2406.19563* (*under revision*)

Pearce, M. and Erosheva, E.A. (2024+) "Modeling preferences: A Bayesian mixture of finite mixtures for rankings and ratings" *arXiv preprint arXiv:2301.09755* (*forthcoming at JASA*)

Pearce, M. and Perlman, M. (2024+) "Estimating the ratio of means in a zero-inflated Poisson mixture model." (*under revision*)

Gallo, S.A., **Pearce, M.**, Lee, C.J., and Erosheva, E.A. (2023) "A new approach to peer review assessments: Score, then rank." *Research Integrity and Peer Review* 8.10: 10.

Pearce, M. and Erosheva, E.A. (2022) "On the validity of bootstrap uncertainty estimates in the Mallows-Binomial model." *arXiv preprint arXiv:2206.12365*.

Pearce, M. and Erosheva, E.A. (2022) "A unified statistical learning model for rankings and scores with application to grant panel review." *Journal of Machine Learning Research* 23.210: 1–33.

Pearce, M. and Raftery, A.E. (2021) "Probabilistic forecasting of maximum human lifespan by 2100 using Bayesian population projections." *Demographic Research* 44.52: 1271–1294.

Pearce, M.*, Sparrow, Z.*, Mabote, T. R., and Sanchez-Gonzalez, R. (2020) "stoBEST: An efficient methodology for increased spatial resolution in two-component molecular tagging velocimetry." *Measurement Science and Technology* 32.3: 035302

* *indicates authors contributed equally.*

OTHER PUBLICATIONS

Pearce, M. and Raftery, A.E. (2021) "Will this be a record-breaking century for human longevity?" *Significance*.

Pearce, M. and Raftery, A.E. (2021) "The maximum human life span will likely increase this century, but not by more than a decade" *The Conversation*.

SCHOLARLY PRESENTATIONS

1. "Statistical Estimation with Ranked Choice Voting" *University of Washington*, Seattle, WA, October 2024. (*Invited lecture in STAT 452*)
2. "Bayesian Rank-Clustering" *Washington State University Vancouver*, Vancouver, WA, October 2024. (*Invited seminar*)

3. "Bayesian Rank-Clustering" *Penn State University; Health Science Department*, University Park, PA, October 2024. (*Invited seminar; virtual*)
4. "Bayesian Rank-Clustering" *Reed College*, Portland, OR, September 2024. (*Math and Statistics department colloquium*)
5. "Broadening Access to Bayesian Statistics with Active Learning" *Joint Statistical Meetings*, Portland, OR, August 2024. (*Invited*)
6. "Bayesian Rank Clustering" *ISBA World Meeting,* Venice, IT, July 2024. (*Contributed*)
7. "Methods for the Statistical Analysis of Preferences, with Applications to Social Science Data" *Classification Society Annual Meeting*, Kelowna, BC, June 2024. (*Invited; Distinguished Dissertation Award session*).
8. "Bayesian Rank Clustering" *Center for Statistics in the Social Sciences 25th Anniversary Conference* Seattle, WA, May 2024. (*Contributed*)
9. "Weighted Mallows-Binomial Model for Rankings and Ratings" *Statistics and Machine Learning in the Social Sciences Working Group*, Seattle, WA, April 2024. (*Invited*)
10. "Rankings and ratings in peer review: A mixture of finite mixtures accounting for degree of reviewer leniency" *Statistics and Machine Learning in the Social Sciences Working Group*, Seattle, WA, November 2023. (*Invited*)
11. "Improving preference analysis: Joint models for ordinal and cardinal data" *International Meeting of the Psychometrics Society*, College Park, MD, July 2023. (*Contributed*)
12. "A Unified Statistical Learning Model for Rankings and Scores with Application to Grant Panel Review" *NeurIPS*, New Orleans, LA, December 2022. (*Contributed*)
13. "Fast Bayesian estimation for ranking models" *Joint Statistical Meetings*, Washington, DC, August 2022. (*Contributed*)
14. "Using ranking data for decision-making" *Joint Statistical Meetings*, Washington, DC, August 2022. (*Session Chair*)
15. "Joint Bayesian inference for rankings and ratings under heterogeneous preferences" *ISBA World Meeting,* Montreal, QC, June 2022. (*Contributed*)
16. "Unified latent class modeling of scores and rankings applied to grant panel review" *Working Group on Model-Based Clustering*, Athens, Greece, October 2021. (*Contributed; virtual*)
17. "Unified latent class modeling of score and rank data applied to grant panel review" *Joint Statistical Meetings*, Seattle, WA, August 2021. (*Contributed; virtual*)

SELECTED MEDIA COVERAGE

- *BBC News (Brazil)* "Por que cada vez mais pessoas estão vivendo até os 100 anos?" (July 11, 2022)
- *Stats and Stories (Podcast)* "The Age of the Supercentenarian" (April 29, 2022) `https://statsandstories.net/health1/the-age-of-the-supercentenarian`.
- *Washington Post* "Want to add healthy years to your life? Here's what new longevity research says." (Oct. 11, 2021)
- *Southern Weekly (China)* "What is the limit of human life span?" (Sept. 16, 2021)
- *CNBC* "Researchers say the probability of living past 110 is on the rise — here's what you can do to get there" (July 17, 2021)
- *Elemental (Medium)* "How Long Can Humans Really Live?" (July 15, 2021)
- *Gulf News* "Surviving up to 150: How long can a person live?" (July 12, 2021)
- *Indian Express* "Can a person live to age 124, 135 or 150? Some optimism, some caveats" (July 6, 2021)
- *The South African* "Rise of the supercentenarians: Today's kids could live for 130 years" (July 4, 2021)
- *UW News* "How long can a person live? The 21st century may see a record-breaker" (July 1, 2021)

TEACHING

Reed College

Instructor, MATH 141 (Introduction to Probability and Statistics)	Fall 2023, Fall 2024
Instructor, MATH 243 (Statistical Learning)	Spring 2025
Instructor, MATH 346 (Bayesian Statistics)	Spring 2024
Instructor, MATH 392 (Mathematical Statistics)	Spring 2025

University of Washington

Instructor, CSSS 508 (Introduction to R for Social Scientists)	Autumn 2022, Spring 2023
Teaching Assistant, CSSS 589 (Multivariate Data Analysis for the Social Sciences)	Autumn 2021
Teaching Assistant, CSSS 594 (Statistics and Philosophy of Voting)	Autumn 2020
Teaching Assistant, STAT 220 (Statistical Reasoning)	Autumn 2019
Teaching Assistant, STAT 311 (Elements of Statistical Methods)	Autumn 2018, Winter 2019
Teaching Assistant, STAT 342 (Introduction to Probability and Mathematical Statistics)	Spring 2019
Teaching Assistant, STAT 528 (Applied Statistics Capstone)	Winter 2021, Winter 2022
Mentor, Directed Reading Program	7 quarters; Autumn 2020–Spring 2022
Mentor, Washington eXperimental Mathematics Lab	Autumn 2021

THESIS MENTORING

Every student at Reed College writes a senior thesis. Below is a list of students whom I have advised.

- Conor Bekaert, "Towards a Weighted Joint Statistical Model for Rankings and Ratings" (2023-24)
- Quinn Hargrove, "Visualizations to Improve Ranked Data Analyses, with Applications to Board Game Data" (2023-24)

SERVICE

Reed College

- Co-organizer, Statistics tenure-track search informational session (2024)
- Organizer, Math and Statistics department colloquium (2023-24)
- Co-organizer, Math and Statistics graduate school panel (2023, 2024)
- Reviewer, Summer scholarships in math and statistics (2024)
- Panelist, Math and Statistics department admissions event (2024)
- Organizer, Statistics curriculum retreat (2024)

College-wide committees:

- Statistics tenure-track search (F2023, S2024, F2024)
- Statistics visiting search (S2024)
- Library Board (2024–25)
- Undergraduate Research Committee (2023–24)

University of Washington

- Reviewer, Pre-application review service (2022)
- Reviewer, PhD program admission (2020, 2021)
- Founder, Queer Union for (Bio)statistician Inclusion and Community affinity group (2022–2023)
- Graduate representative, Undergraduate statistics curriculum revamp committee (2021–22)

Broader Community

- Anonymous peer reviewer (*PlosOne, Biomedicine Hub, Cogent Social Sciences, Advances in Data Science and Classification, Journal of Statistics and Data Science Education*)
- Judge, Undergraduate Statistics Project Competition (December 2023 cycle)
- Workflow chair, International Conference on Machine Learning (2021)

HONORS AND AWARDS

Distinguished Dissertation Award *(The Classification Society)* 2024
Best Poster Award *(International Society for Bayesian Analysis World Meeting)* 2024
Travel Award *(International Society for Bayesian Analysis)* 2022, 2024
Scholar Award *(NeurIPS)* 2022
Dorothy M. Gilford Teaching Award *(University of Washington)* 2021

INDUSTRY EXPERIENCE

Boeing Research and Technology 2019–2020
Applied Statistics Intern

Deloitte LLC 2017–2018
Analytics Consultant

SOFTWARE

rankclust: Fit a Bayesian, Rank-Clustered Bradley-Terry-Luce Model to Ordinal Comparison Data. R package available on Github. Vignettes available here.

rankrate: Statistical Tools for Preference Learning with Rankings and Ratings. R package available on CRAN. Vignettes available here.

Peer Review with Rankings and Ratings. R Shiny application.

PROFESSIONAL AFFILIATIONS

American Statistical Association
International Society for Bayesian Analysis
Psychometric Society