

# MICHAEL PEARCE

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Reed College, Department of Mathematics and Statistics  
3203 SE Woodstock Blvd, Portland, OR 97202

## APPOINTMENT

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### Assistant Professor of Statistics (tenure-track)

Reed College, Department of Mathematics and Statistics

2023–Present

## EDUCATION

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### 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 WORKS

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Pearce, M. and Erosheva, E.A. (2024+) “Bayesian Rank-Clustering” *arXiv preprint arXiv:2406.19563* (*submitted*)

Pearce, M. and Erosheva, E.A. (2024+) “Modeling preferences: A Bayesian mixture of finite mixtures for rankings and ratings” *arXiv preprint arXiv:2301.09755* (*in revision*)

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

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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*.

## RESEARCH PRESENTATIONS

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### Invited

- *Joint Statistical Meetings*, Portland, OR. “Broadening Access to Bayesian Statistics with Active Learning,” August 2024.
- *Classification Society Annual Meeting*, Kelowna, BC. “Methods for the Statistical Analysis of Preferences, with Applications to Social Science Data (Distinguished Dissertation Award session),” June 2024.

- *Statistics and Machine Learning in the Social Sciences Working Group*, Seattle, WA. “Weighted Mallows-Binomial Model for Rankings and Ratings,” April 2024.
- *Statistics and Machine Learning in the Social Sciences Working Group*, Seattle, WA. “Rankings and ratings in peer review: A mixture of finite mixtures accounting for degree of reviewer leniency,” November 2023.

## Contributed

- *ISBA World Meeting*, Venice, IT. “Bayesian Rank Clustering,” July 2024.
- *Center for Statistics in the Social Sciences 25th Anniversary Conference*, Seattle, WA. “Bayesian Rank Clustering,” May 2024.
- *International Meeting of the Psychometrics Society*, College Park, MD. “Improving preference analysis: Joint models for ordinal and cardinal data”, July 2023.
- *NeurIPS*, New Orleans, LA. “A Unified Statistical Learning Model for Rankings and Scores with Application to Grant Panel Review,” December 2022.
- *Joint Statistical Meetings*, Washington, DC. “Fast Bayesian estimation for ranking models,” August 2022.
- *Joint Statistical Meetings*, Washington, DC. “Using ranking data for decision-making (session chair),” August 2022.
- *ISBA World Meeting*, Montreal, QC. “Joint Bayesian inference for rankings and ratings under heterogeneous preferences,” June 2022.
- *Working Group on Model-Based Clustering*, Athens, Greece (virtual). “Unified latent class modeling of scores and rankings applied to grant panel review,” October 2021.
- *ISBA World Meeting*, Venice, IT. “Bayesian Rank Clustering,” July 2024.
- *Joint Statistical Meetings*, Seattle, WA (virtual). “Unified latent class modeling of score and rank data applied to grant panel review,” August 2021.

## SELECTED MEDIA COVERAGE

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- *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

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### Reed College

Instructor, MATH 141 (Introduction to Probability and Statistics)  
 Instructor, MATH 346 (Bayesian Statistics)

Fall 2023, Fall 2024  
 Spring 2024

### University of Washington

Instructor, CSSS 508 (Introduction to R for Social Scientists)  
 Teaching Assistant, CSSS 589 (Multivariate Data Analysis for the Social Sciences)  
 Teaching Assistant, CSSS 594 (Statistics and Philosophy of Voting)  
 Teaching Assistant, STAT 220 (Statistical Reasoning)

Autumn 2022, Spring 2023  
 Autumn 2021  
 Autumn 2020  
 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

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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

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### 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)
- 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)
- Undergraduate research committee (2023–24)

### University of Washington

- Reviewer, Pre-application review service (2022)
- Reviewer, PhD program admission (2020, 2021)
- Founder and member, 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

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

## INDUSTRY EXPERIENCE

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**Boeing Research and Technology**

2019–2020

*Applied Statistics Intern*

**Deloitte LLC**

2017–2018

*Analytics Consultant*

## SOFTWARE

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**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

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American Statistical Association

International Society for Bayesian Analysis

Psychometric Society