

# MICHAEL PEARCE

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3203 SE Woodstock Blvd, Portland, OR 97202

## APPOINTMENT

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### Assistant Professor of Statistics

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*

## SCHOLARLY PUBLICATIONS

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

**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

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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*.

## TEACHING AND MENTORSHIP

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### Reed College

Instructor, MATH 141 (Introduction to Probability and Statistics)

Fall 2023

Instructor, MATH 346 (Bayesian Statistics)

Spring 2024

### 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
<b>St. Olaf College</b>	
Supplemental Instructor, MATH 126 (Calculus II)	Spring 2017
Supplemental Instructor, MATH 242 (Modern Computational Mathematics)	Spring 2017

## 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”

Quinn Hargrove, “Visualizations to Improve Ranked Data Analyses, with Applications to Board Game Data”

## CONFERENCE PRESENTATIONS

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<b>Joint Statistical Meetings</b> , Portland, OR	August 2024
“Broadening Access to Bayesian Statistics with Active Learning” (invited presentation)	
<b>ISBA World Meeting</b> , Venice, Italy	July 2024
“Bayesian Rank Clustering” (poster session)	
<b>Classification Society Annual Meeting</b> , Kelowna, British Columbia	June 2024
“Methods for the Statistical Analysis of Preferences, with Applications to Social Science Data” (Distinguished Dissertation Award session)	
<b>Center for Statistics in the Social Sciences 25th Anniversary Conference</b> ,	May 2024
“Bayesian Rank Clustering” (poster session)	
<b>International Meeting of the Psychometrics Society</b> , College Park, MD	July 2023
“Improving preference analysis: Joint models for ordinal and cardinal data” (presentation)	
<b>NeurIPS</b> , New Orleans, LA	December 2022
“A Unified Statistical Learning Model for Rankings and Scores with Application to Grant Panel Review” (Journal-to-Conference Track Poster Session)	
<b>Joint Statistical Meetings</b> , Washington, D.C.	August 2022
“Using ranking data for decision-making” (topic-contributed paper session; organizer and chair)	
“Fast Bayesian estimation for ranking models” (speed session)	
<b>ISBA World Meeting</b> , Montreal, Canada	June 2022
“Joint Bayesian inference for rankings and ratings under heterogeneous preferences” (poster session)	
<b>Working Group on Model-Based Clustering</b> , Athens, Greece (virtual)	October 2021
“Unified latent class modeling of scores and rankings applied to grant panel review” (poster session)	
<b>Joint Statistical Meetings</b> , Seattle, WA (virtual)	August 2021
“Unified latent class modeling of score and rank data applied to grant panel review” (speed session)	
<b>MAA MathFest</b> , Chicago, IL	July 2017
“A new method for computational analysis of high-speed gas flows” (Pi Mu Epsilon student paper session)	
<b>National Conference on Undergraduate Research</b> , Memphis, TN	April 2017
“Analysis of high-speed gaseous flows using molecular tagging velocimetry and the Hough transform” (poster presentation)	

## 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)

## INDUSTRY EXPERIENCE

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**Boeing Research and Technology** 2019–2020  
*Applied Statistics Intern*

**Deloitte LLC** 2017–2018  
*Analytics Consultant*

## HONORS AND AWARDS

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**Distinguished Dissertation Award** (*The Classification Society*) 2024

**ISBA World Meeting Travel Award** (*International Society for Bayesian Analysis*) 2022, 2024

**Scholar Award** (*NeurIPS*) 2022

**Dorothy M. Gilford Teaching Award** (*University of Washington*) 2021

**Phi Beta Kappa** 2017

**Pi Mu Epsilon** 2016

## SOFTWARE

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**rankrate: Statistical Tools for Preference Learning with Rankings and Ratings.** R package available on CRAN. Vignettes: <https://pearce790.github.io/rankrate/>

**Peer Review with Rankings and Ratings.** R Shiny application. [https://pearce790.shinyapps.io/rankrate\\_PeerReview/](https://pearce790.shinyapps.io/rankrate_PeerReview/)

## PROFESSIONAL SERVICE

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**Anonymous Peer Reviewer**

*PlosOne, Biomedicine Hub, Cogent Social Sciences, Advances in Data Science and Classification*

**Undergraduate Statistics Project Competition (USPROC) Judge** 2024

## COLLEGE SERVICE AND OUTREACH

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**Reed College**

Statistics Tenure-Track Search Committees 2024, 2023

Statistics Visiting Search Committee 2024

Undergraduate Research Committee 2023–2024

Mathematics and Statistics Department Colloquium Organizer 2023–2024

**University of Washington**

Pre-Application Review Service (reviewer) 2022

PhD Admissions (reviewer) 2020–2021

International Conference on Machine Learning (workflow chair) 2021

Queer Union for (Bio)statistician Inclusion and Community (founder) 2022–2023

Undergraduate Curriculum Revamp Committee (member) 2021–2022

**St. Olaf College**

TRiO Upward Bound Program (student mentor) 2013–2015

## PROFESSIONAL AFFILIATIONS

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American Statistical Association  
International Society for Bayesian Analysis  
Psychometric Society