# Karl Oskar Ekvall

Assistant Professor in Statistics and Data Science

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022/08 - present
21/11 - 2022/08
020/06 - 2021/11
19/03 - 2020/05
2019
2017
2012
2011

# Publications

THEORY AND METHODS

Molstad, Ekvall, and Suder, 2024, "Direct covariance matrix estimation with compositional data". *Electronic Journal of Statistics* 18(1): 1702–1748

Ekvall and Bottai, 2023, "Concave likelihood-based regression with finite-support response variables". *Biometrics* 79(3): 2286–2297.

Ekvall and Bottai, 2022, "Confidence regions near singular information and boundary points with applications to mixed models". *Annals of Statistics* 50(3): 1806–1832.

Ekvall, 2022, "Targeted principal components regression". Journal of Multivariate Analysis 190: 104995.

Ekvall and Molstad, 2022, "Mixed-type multivariate response regression with covariance estimation". *Statistics in Medicine* 41(15): 2768–2785.

Ekvall and Jones, 2021, "Convergence analysis of a collapsed Gibbs sampler for Bayesian vector autoregressions." *Electronic Journal of Statistics* 15(1): 691–721.

Ekvall and Jones, 2020, "Consistent maximum likelihood estimation using subsets with applications to multivariate mixed models." *Annals of Statistics* 48(2): 932–952.

Ekvall and Jones, 2019, "Markov chain Monte Carlo." Wiley StatsRef.

## COLLABORATIVE AND APPLIED

Gustin, Ekvall, Barman, Jacobsson, Sandin, Sandberg, Wold, Vahter, and Kippler, 2023, "Mediation by thyroid hormone in the relationships between gestational exposure to methylmercury and birth size." *Exposure and Health*.

# Consulting

University of Minnesota, School of Statistics consulting clinic, approx. 70h	2017
U.S. Geological Survey, estimating monotonic trends in multivariate time series, 339 h	2016
Teaching	
University of Florida	
Introduction to / Foundations of probability, approx. 90h	2022 - 2023
Karolinska Institutet	
Undergraduate biostatistics in bachelor's program in biomedicine, approx. 150h	2020 - 2021
Interprofessional learning day, 3h	2021
University of Minnesota – Twin Cities	
Introduction for new teaching assistants, approx. 12h	2018 - 2019
Theory of statistics for advanced undergraduate students, approx. 84h	2017 - 2018
Statistical computing for undergraduate students, approx 84h	2018
Introductory statistics for undergraduate students*, approx. 252h	2014 - 2016
*as teaching assistant	
Presentations	
"Inference on some (nearly-)singular covariance matrices". CMStatistics, London, U.K.	2022
"Inference on variance parameters near or at the boundary of the parameter set". University of Minnesota, School of Statistics, anniversary. Minneapolis, MN, USA.	2022
"Reliable inference on small scale and variance parameters in mixed models". MEB biostatistics seminar. Stockholm, Sweden.	2021
"Confidence intervals for small scale parameters". IMM research day. Stockholm, Sweden	2020
"Consistent maximum likelihood estimation in mixed models using subsets". Joint Statistical Meetings. Philadelphia, PA, U.S.	2020
"Convergence analysis of a collapsed Gibbs sampler for Bayesian vector autoregressions". CMStatistics. London, U.K.	2019
"Consistent maximum likelihood estimation in mixed models using subsets". University of Vienna seminar. Vienna, Austria	2019
"Convergence analysis of a collapsed Gibbs sampler for Bayesian vector autoregressions". TU Wien colloquium. Vienna, Austria	2019

"A multivariate linear model with separable correlation". International Chinese Statistical Association, applied statistics symposium. Chicago, IL, U.S.

#### Software

lmmstest R package for implementing a modified score test for scale parameters in linear mixed models. https://github.com/koekvall/lmmstest

mmrr R package for estimating mixed-type multivariate response regressions. https://github.com/koekvall/ mmrr

tpcr R package for estimating targeted principal components regressions. https://github.com/koekvall/tpcr

#### Service

EDITORIAL BOARD
Associate Editor Statistics and Probability Letters
2024–

## REVIEWER

Biometrika, Annals of Applied Statistics, Journal of Internal Medicine, Statistical Methods in Medical Research, Statistics in Medicine, National Science Foundation, Electronic Journal of Statistics, Journal of Computational and Graphical Statistics, Computational Statistics and Data Analysis, Annales de l'Institut Henri Poincaré

## Awards

Miscellaneous	
The American–Scandinavian foundation fellowship	2016
Fulbright foreign student program	2014
Tom Hedelius foundation scholarship	2014
Sixten Gemzéus foundation scholarship	2014
Malmsten award for best thesis in M.Sc. in Finance program	2014
University of Minnesota – Twin Cities	
Graduate research partnership program fellowship	2017
Lynn Y.S. Lin fellowhsip for statistical consulting	2016
School of Statistics first year scholarship	2014
Student supervision	
Yiqiao Zhang, Ph.D. in Statistics, University of Florida.	2022-

Jonatan Risberg (M.Sc. in applied mathematics). Six week summer research project. 2021

2017