Andrew **Gard**

Assistant Professor of Mathematics

Lake Forest College

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Professional Experience

Lake Forest College — *Lake Forest, Illinois, USA*

Assistant Professor of Mathematics — *2019-present*

University of the Virgin Islands — *Saint Croix, US Virgin Islands*

Assistant Professor of Mathematics — *2014-2019*

Ohio Wesleyan University — *Delaware, Ohio*

Visiting Assistant Professor of Mathematics — *2012-2014*

Education

Doctor of Philosophy, Mathematics

Ohio State University

Bachelor of Science, Mathematics

Ohio State University

Bachelor of Arts, Philosophy

Ohio State University

Software development

- The **fqar** package. Tools in R for downloading and analyzing floristic quality assessment data*. Published to the Central R Archive Network (CRAN) September 2022. Major update (0.5.3) April 2024. Visit the package website and install the development version at `https://github.com/equitable-equations/fqar`.

Publications

- Gard, A, & Martin, G. Practical data analysis with R: a handbook for the working professional. *Under contract with No Starch Press*. Expected completion: February 2025.
- Gard, A., et. al. A new metric for measuring the conservancy of plant species*. *Completed*. Expected submission to the *Journal of Applied Ecology*: October 2024.
- Gard, A., Myers A., & Luwabelwa, I (2024). The *fqar* package: R tools for analyzing floristic quality assessment data*. *Journal of Open Source Software*, 9(96), 6366, `https://doi.org/10.21105/joss.06366`
- Gard, A., & Wilson, O. (2023). Prediction intervals for interpolants*. *Rocky Mountain Journal of Mathematics*. Accepted Sept. 2023, DOI pending.
- Gard, A. (2023). Equal-speed pursuit and evasion on manifolds. *International Journal of Game Theory*, 1-14. `https://doi.org/10.1007/s00182-023-00868-x`
- Gard, A. (2018). The wild goose chase problem. *The American Mathematical Monthly*, 125(7), 602–611. `https://doi.org/10.1080/` 00029890.2018.1465785
- Ekici, C., & Gard, A. (2016). Inquiry-based learning of transcendental functions in calculus. *PRIMUS*, 27. `https://doi.org/10.1080/10511970.2016.1214654`
- Gard, A. (2013). Procedings of the midstates conference of undergraduate research in mathematics and computer science (editor). Ohio Wesleyan University.
- Gard, A. (2012). Reverse isoperimetric inequalities in $\mathbb{R}^3$ [PhD thesis, Ohio State University]. `http://rave.ohiolink.edu/etdc/view?acc_num=osu1330528578`

*Includes undergraduate co-authors

Undergraduate Research

Projects completed in the last five years include:

- *Enhancing accessibility in Lake Forest College's data science major*, with Tobias Ellis. Summer 2024.
- *Hypoxia reversal improves antimalarial immune response*, with Kateryna Malkina. Academic year 2023-2024.
- *Investigating co-occurrence in Chicagoland floristic quality assessments*, with Irene Lulabelwa and Ryan Sorrells. Summer 2023 James Rocco fellowship.
- *Measuring success in Formula 1 racing*, with Lethu Mncube. Spring 2023.
- *Using machine learning to detect the presence of the onchocerca parasite*, with Jovana Jovanovska. Academic year 2022-2023.
- *Developing quantitative tools for floristic quality assessment*, with Alexia Myers. Summer 2022
- *Uncertainty in SIR epidemiological models*, with Kateryna Malkina. Summer 2022
- *Exploring the broader impacts of the COVID-19 pandemic*, with Veronika Chernikov, Christopher Arzate-Benitez, and Kenza Kantour. Summer 2021
- *The lion-and-man problem in the hyperbolic disk*, with Dipika Subramaniam. Academic year 2020-2021.
- *Prediction intervals for interpolants*, with Ethan Wilson. Summer 2020 Richter scholars program.

Teaching

Over twelve years of experience as a college professor. Exceptionally high reviews from students, peers, and supervisors. **Specialization: statistics in the *R* programming environment**. Selected recent courses:

- *Introduction to Statistical Programming*. A project-based introduction to data science using *R*. Topics include data cleaning and visualization, multiple linear regression, analysis of variance, and bootstrapping.
- *Mathematical Probability*. Discrete and continuous probability distributions, the law of large numbers, the central limit theorem, random variables, and moment-generating functions.
- *Introduction to Probability and Statistics*. Comprehensive coverage of standard statistical techniques utilizing *R* as the primary technological tool.

I am also qualified to teach a wide range of courses in advanced statistics and machine learning, including using Python.

YouTube

My YouTube channel, Equitable Equations (`https://www.youtube.com/c/EquitableEquations`), includes over 400 tutorials in statistics, R programming, and mathematics. It currently has over 32,000 subscribers and attracts more than 1,000,000 views annually. Some highlights:

- *Logistic regression in R* (`https://youtu.be/E7J3M1oYVlc`), which showcases my statistical and R programming skills.
- *Ethical AI in Healthcare* (`https://youtu.be/jazrwe08BXk`), a conversation with Dr. Heather Mattie of Harvard's T.H. Chan School of Public Health.
- *Learn R in 39 minutes* (`https://youtu.be/yZ0bV2Afkjc`), my most popular video to date with over 600,000 views since publication in February, 2023.

Private consulting

- Domain expert in statistics and R programming at *EnterpriseDNA* (`https://enterprisedna.co`). Courses available: *Inferential statistics I*, *Inferential statistics II*.

Service

Recent service to the Department of Mathematics and Computer Science and the Lake Forest College community:

- *Panelist* for the Humanities Day 2024 discussion of W.E.B. Du Bois with Drs. Tracey Taylor (Art) and Courtney Pierre Joseph (History and African American Studies).
- *Mentor* for the 2023 Public Policy Research Challenge, where my team reached the finals.
- *Data analyst* for the Applied Data Center, spring 2023. Assisted Dr. Sean Menke (Biology) and his student researcher with statistical methods for their green rooftops project.
- *Organizer and host* of the 2023 S.M.A.R.T. Colloquium. Planned, publicized, and hosted a 150-person event featuring student speakers in Statistics, Mathematics, Algorithms, and Related Things.
- *Member*, 2023 Computer Science Search Committee.

Recent roles within the Lake Forest College shared governance structure:

- *Office of Faculty Development Junior Fellow* (2022-present). Supports incoming tenure-track faculty members through training and mentorship. Advances the mission of the OFD through planning & attendance at events.
- *Pre-Health Advising Committee* (2021-present). Provides support and guidance for students intending to go to graduate school in health-related fields.
- *Educational Advisory Committee* (2023-present). Coordinates with LFC's education department to support and mentor aspiring math teachers, particularly at the high school level.
- *LFC-RFU Steering Committee* (2020-2022). Supports Lake Forest College's partnership programs with Rosalind-Franklin University, particularly the Health Professionals Program.
- *Academic Honesty Judicial Board* (2020-2022). Adjudicates claims of student misconduct in classes, including accusations of cheating on exams and plagarism of papers