

Brian Zaharatos

Teaching Professor • Faculty Director, MS in Data
Science

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Summary

- Teaching faculty leader designing and delivering statistics and data science curricula across in-person, hybrid, and fully online (Coursera) modalities.
- Program leadership in professional master's education, including curriculum development, governance, and cross-unit coordination.
- Sustained service at department, college, and university levels, including committee work and peer review.

Education

PhD, Applied Mathematics and Statistics, 2015

Colorado School of Mines — Golden, CO

Dissertation: Statistical Modeling of Photovoltaic Device Performance. Advisors: Luis Tenorio; Paul Constantine.

MA, Philosophy, 2012

University of South Carolina — Columbia, SC

PhD comprehensive exam pass (History of Philosophy), 2011

Relevant graduate coursework: Teaching Philosophy; Logic; Probability Theory.

BS, Mathematics and Philosophy, 2007

Stony Brook University (SUNY) — Stony Brook, NY

Academic Appointments

- **Teaching Professor**, Department of Applied Mathematics, University of Colorado Boulder, Boulder, CO (Fall 2022–present)
- **Senior Instructor**, Department of Applied Mathematics, University of Colorado Boulder, Boulder, CO (Fall 2019–Fall 2022)
- **Instructor**, Department of Applied Mathematics, University of Colorado Boulder, Boulder, CO (2015–2019)
- **Graduate Teaching/Research Fellow**, Department of Applied Mathematics and Statistics, Colorado School of Mines, Golden, CO (2011–2015)
- **Part-time Instructor**, Departments of Philosophy and Mathematics, Red Rocks Community College, Lakewood, CO (Jan 2013–2015)
- **Graduate Instructor and Teaching Assistant**, Department of Philosophy, University of South Carolina, Columbia, SC (2009–2011)

Leadership and Program Administration

Faculty Director, MS in Data Science, CU Boulder (2023–present)

- Leading program direction and governance for the MS in Data Science (College of Engineering & Applied Science).
- Providing curriculum development and coordination, leading instructional and program support staffing, and facilitating partnerships supporting residential and online pathways.

Faculty Director, Professional MS in Applied Mathematics, CU Boulder (2018–2024)

- Directed program operations including curriculum planning, advising, and continuous improvement; contributed to development of the MS in Data Science, BA in Statistics & Data Science, and MS in Applied Mathematics.

Teaching

Teaching methods and modalities include student-centered, curiosity-driven learning environments; active learning and partially flipped formats; asynchronous and synchronous online environments reaching thousands of learners across the globe (Coursera, Canvas, WebAssign); and classroom technology (iPad notes, Jupyter notebook demonstrations).

Online / Scaled Instruction (Coursera)

- DTSA 5011 Modern Regression Analysis in R
- DTSA 5012 ANOVA and Experimental Design
- DTSA 5013 Generalized Linear Models and Nonparametric Regression
- DTSA 5726 Introduction to Bayesian Statistics for Data Science

Residential / Campus Instruction (selected)

- STAT 4630/5630 Computational Bayesian Statistics
- STAT 4520/5520 Introduction to Mathematical Statistics
- STAT 4000/5000 - 4010/5010 Statistical Methods and Applications I-II
- CSCI 3022 Data Science (Computer Science)
- APPM 3310 Matrix Methods
- FYSM 1000 First-Year Seminar: Choices, Choices! An Interdisciplinary Look at Decision Theory
- APPM 1360 Calculus II for Engineers

Additional Teaching (earlier)

- Intro to Statistics (Red Rocks Community College)
- Research Ethics (graduate level, Colorado School of Mines)
- Inductive Logic; Deductive Logic (University of South Carolina)
- Intro to Philosophy (University of South Carolina)
- Ethics; Environmental Ethics (Red Rocks Community College)
- Nature and Human Values (Colorado School of Mines)

Publications

Book

Zaharatos, B. *Patterns and Static: Philosophy and the Question Concerning Statistics*. Forthcoming.

Peer-Reviewed and Refereed

- Gardiner, G., and **Zaharatos, B.** The Safe, the Sensitive, and the Severely Tested: A Unified Account. *Synthese*. 2022.
- Zaharatos, B.**, Campanelli, M., and Tenorio, L. Estimability of the PV Single-Diode Model Parameters. *Statistical Analysis and Data Mining* 8(5-6): 329-339. 2015.
- Constantine, P., **Zaharatos, B.**, and Campanelli, M. Discovering an Active Subspace in a Single-Diode Solar Cell Model. *Statistical Analysis and Data Mining* 8(5-6): 264-273. 2015.
- Rolston, J., Huzyk, S., Packard, C., Mitcham, C., and **Zaharatos, B.** Nanoethics and Policy Education: A Case Study of Social Science Coursework and Student Engagement with Emerging Technologies. *NanoEthics* 8(3): 217-225. 2014.

Professional / Pedagogical and Other

- Zaharatos, B.**, and Glawson, M. Trigger Warning: Disturbing Data Sets in the Classroom. *Significance* 15(2): 38-40. 2018.
- Zaharatos, B.** Statistical Errors Are Often Not Due to Mathematical Errors [Letter to the Editor]. *Chronicle of Higher Education*. 2017.
- Zaharatos, B.** Contributing author (multiple entries) in *Ethics, Science, Technology, and Engineering*, Second Edition. Macmillan Reference. 2014.

Invited Talks (selected)

- Philosophical and Ethical Issues in Statistics: A Course for STEM Students.** Summer Seminar in the Philosophy of Statistics. August 2, 2019.
- How Interdisciplinary is Data Science? Computer Science, Statistics, and...Philosophy.** Colorado Data Science Team, CU Boulder. February 14, 2017.
- Beyond the "Intersection": A New Paradigm for the Integration of the Liberal Arts and STEM.** Colorado School of Mines. April 2016.
- Beyond Algorithms: Philosophy of Statistics in the Standard Curriculum.** Committee for the History and Philosophy of Science, CU Boulder. February 23, 2016.
- Inverse Problems and Uncertainty Quantification: A Gentle Introduction.** CU Boulder. April 2015.
- Statistics and Rationality.** Northern Arizona University. April 2015.
- Statistics as a Liberal Art.** The Evergreen State College. March 2015.
- Social Movements and Rationality.** The Evergreen State College. March 2015.

Conferences (selected)

- Zaharatos, B.**, and Van Buskirk, I. Neutrality and Objectivity: the limits - and promise - of causal inference with social science data. *Joint Statistical Meetings*. 2024.
- Van Buskirk, I., **Zaharatos, B.**, Clauset, A., and Larremore, D. If the data do not speak for themselves, how ought we to speak for the data? D.A.R.E workshop at ICWSM. 2023.
- Zaharatos, B.**, Philosophical and Ethical Issues in Statistics. Roundtable Facilitator. *Joint Statistical Meetings*. 2018.
- Zaharatos, B.**, Caveats on Data Cloning. Poster Presentation. *Joint Statistical Meetings*. 2018.
- Zaharatos, B.**, Statistics as a Liberal Art. *Joint Mathematics Meetings*. 2016.

Zaharatos, B., An Active Subspace Analysis of the Single-Diode Model. Oral presentation. SIAM Conference on Computational Science. March 14, 2015.

Zaharatos, B., Likelihood Methods for Single-Diode Model Parameter Estimation from Noisy I-V Curve Data. Oral presentation. Photovoltaic Specialists Conference. 2014 (best student paper award).

Service

- **School of Computing Steering Committee Member**, University of Colorado Boulder (Fall 2024–present).
- **Department of Applied Mathematics Strategic Vision Committee Member**, CU Boulder (Fall 2024–2025).
- **Steering Committee Member, MS in Data Science**, CU Boulder (Spring 2021–Spring 2023, chair summer 2023 - present).
- **Statistics and Data Science Committee Member**, Department of Applied Mathematics, CU Boulder (Spring 2016–present).
- **Faculty Leadership Institute**, CU Boulder (Fall 2021–Spring 2022).
- **Undergraduate Committee, Department of Applied Mathematics**, CU Boulder (Fall 2017–Spring 2018).
- **Faculty Fellow, Arts and Sciences Support of Education Through Technology (ASSETT)**, CU Boulder (Spring 2017–Spring 2018).
- **Referee, PRIMUS** (2016–2017).
- **Committee for the History and Philosophy of Science Member**, CU Boulder (Spring 2016–2019).
- **Faculty Advisor, Undergraduate SIAM Chapter**, CU Boulder (Fall 2015–Spring 2018).
- **Judge, Rocky Mountain Ethics Bowl** (Fall 2016).
- **IT Committee Member, Department of Applied Mathematics**, CU Boulder (Spring 2016–Spring 2017).

Awards and Grants

- Eric Vance (PI), **Brian Zaharatos (co-PI)**, Derek Briggs (co-PI), and Jessica Alzen (co-PI). Transformative Education and Training in Interdisciplinary Statistics and Data Science (TETRIS). NSF Innovations in Graduate Education (IGE). July 2020–June 2023. \$500,000.
- ASSETT Faculty Fellows Program, University of Colorado Boulder (2017–2018).
- AMS Graduate Teaching Award, Colorado School of Mines (2014–2015).
- Graduate Teaching Fellowship, Colorado School of Mines (2012–2013; Spring 2015).
- National Center for Photovoltaics Graduate Student Fellowship (January 2014).
- Teaching Assistantship, University of South Carolina (2009–2011).
- James W. Oliver Award for the Study of Logic, University of South Carolina.

Consulting

- Six Head Corp, Longmont, CO — Statistics Consultant (2020–2021).
- Bardwell Consulting / OptiMiser Energy, Denver, CO — Statistics Consultant (2012; April 2015–2016; October 2017).

- EMS Development Corporation, Yaphank, NY — Applied Mathematics Consultant (2010–2011).

Public Service

- Big Brothers Big Sisters Mentor. Sheridan High School. 2016 - 2020.
- AmeriCorps National Civilian Community Corps (Denver, CO), 2008 — 2,000+ service hours with non-profits / U.S. Forest Service; Presidential Volunteer Service Award; Bronze Congressional National Service Award.
- Nevada Conservation Corps (Reno, NV), Summer 2009 — 400+ service hours with nonprofits / U.S. Forest Service.