

Trevor D. Ruiz

Statistics Department
Bailey College of Science and Mathematics
California Polytechnic State University, San Luis Obispo

1 Grand Avenue
San Luis Obispo, CA
93407

tel. (805) 756-2776
email truiz01@calpoly.edu
web <https://tdruiz.com>

Research interests: time series, model selection, high-dimensional data, statistical computing, biological and ecological applications.

Teaching areas: applied statistics, probability & mathematical statistics, data science.

A. Education

- 2020 Ph.D. Statistics, Oregon State University, Corvallis, OR.
- 2017 M.S. Statistics, Oregon State University, Corvallis, OR.
- 2015 Graduate Certificate in Applied Statistics, Portland State University, Portland, OR.
- 2011 B.A. Philosophy, Reed College, Portland, OR.

B. Academic Appointments

- 2023-present Assistant Professor, Statistics Department, California Polytechnic State University, San Luis Obispo. San Luis Obispo, CA.
- 2020-2023 Visiting Assistant Professor, Department of Statistics and Applied Probability, University of California, Santa Barbara. Santa Barbara, CA.

C. Other Experience

- 2019 NSF Mathematical Sciences Graduate Research Intern, Geospatial Research Lab, Engineer Research and Development Center, U.S. Army Corps of Engineers, Alexandria, VA.
- 2018 Graduate Student Instructor, Department of Statistics, Oregon State University, Corvallis, OR.
- 2015-2020 Graduate Research/Teaching Assistant, Department of Statistics, Oregon State University, Corvallis, OR.

D. Publications

In reverse chronological order by section; † indicates student coauthor; § indicates co-lead.

- In preparation
10. Camille C. Pawlak, Reed J. Kenny, **Trevor D. Ruiz**, Kaviya Veerasingam†, Julia C. Schedler, Andrew Pineda, G. Andrew Fricker, Thomas W. Gillespie, Matt K. Ritter, and Jenn M. Yost. Integrating arborist records and remote sensing to improve urban tree allometric equations and benefit estimates.
 9. Savannah J. Weaver, Ethan Barnes†, **Trevor D. Ruiz**, Alvaro Ramos†, Evan Odberg, Justin Chung, Kinsey Brock, and Emily N. Taylor. Cutaneous evaporative water loss is invariably low among Mojave desert lizard species.
 8. Haley A. Moniz§, **Trevor D. Ruiz**§, Nicole E. Yee†, Emma M. Reardon†, Scott M. Boback, and Emily N. Taylor. Low metabolic rates and extended winters create exceptionally low energetic requirements for female rattlesnakes.
- Peer reviewed
7. Erin V. Satterthwaite§, **Trevor D. Ruiz**§, Nastassia V. Patin, Michaela N. Alksne, Len Thomas, Julie Dinasquet, Robert H. Lampe, Katherine G. Chan†, Nicholas A. Patrick†, Andrew E. Allen, Simone Baumann-Pickering, and Brice X. Semmens. Microbial and small zooplankton communities predict density of baleen whales in the southern California Current Ecosystem. *PLOS One*, 21(5):e0334209, 2026.
[\[paper\]](#) [\[code\]](#) [\[data\]](#)
 6. **Trevor D. Ruiz**, Sharmodeep Bhattacharyya, and Sarah C. Emerson. Sparse estimation of parameter support sets for generalized vector autoregressions by resampling and model aggregation. *Journal of Statistical Computation and Simulation*, 95(8):1666–1681, 2025.
[\[paper\]](#) [\[code\]](#) [\[preprint\]](#)
 5. Haley A. Moniz, Jack H. Buck, Hayley L. Crowell, Scott M. Goetz, **Trevor D. Ruiz**, Emily N. Taylor, and Scott M. Boback. High thermal quality rookeries facilitate high thermoregulatory accuracy in pregnant female rattlesnakes. *Journal of Thermal Biology*, 124:103948, 2024.
[\[paper\]](#) [\[code\]](#) [\[data\]](#)
 4. Awino M. E. Ojwang’§, **Trevor D. Ruiz**§, Sharmodeep Bhattacharyya, Shirshendu Chatterjee, Peter S. Ojiambo, and David H. Gent. A general framework for spatio-temporal modeling of epidemics with multiple epicenters: application to an aerially dispersed plant pathogen. *Frontiers in Applied Mathematics and Statistics*, 7:721352, 2021.
[\[paper\]](#)
 3. **Trevor D. Ruiz**, Sharmodeep Bhattacharyya, Mahesh Balasubramanian, and Kristofer E. Bouchard. Sparse and low-bias estimation of high dimen-

- sional vector autoregressive models. In *Learning for Dynamics and Control*, volume 120 of *Proceedings of Machine Learning Research*, pages 55–64, 2020. [\[paper\]](#)
2. Mahesh Balasubramanian, **Trevor D. Ruiz**, Brandon Cook, Prabhat, Sharmodeep Bhattacharyya, Arival Shrivastava, and Kristofer E. Bouchard. Scaling of union of intersections for inference of granger causal networks from observational data. In *2020 IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, pages 264–273, 2020. [\[paper\]](#)
 1. David H. Gent, Sharmodeep Bhattacharyya, and **Trevor D. Ruiz**. Prediction of spread and regional development of hop powdery mildew: A network analysis. *Phytopathology*, 109(8):1392–1403, 2019. [\[paper\]](#)

E. Funding

- Awards 2025-2026 PI, Statistical modeling of dynamic seawater chemistry in Morro Bay. Santa Rosa Creek Foundation Mini Grant Program, Center for Coastal Marine Sciences, California Polytechnic State University. \$19,732.
- 2024-2025 PI, Statistical methods for environmental genomics. Research, Scholarship, and Creative Activities (RSCA) Grant Program, Division of Research, California Polytechnic State University. \$17,900.
- Submittals PI, Improved inference and interpretation of ecological association networks. Teacher-Scholar Mini Grant Program, Division of Research, California Polytechnic State University, 2026 award cycle. *Under review*.
- PI, Development and application of envelope methods for inference of low dimensional structure in eDNA metabarcoding data. LEAPS-MPS Program, Division of Mathematical Sciences, NSF, 2025 award cycle. *Not funded*.
- co-PI, Technology transfer and computational reproducibility for data-driven research. Teacher-Scholar Mini Grant Program, Division of Research, California Polytechnic State University, 2025 award cycle. *Not funded*.

F. Teaching

In reverse chronological order by last quarter taught and institution; cross-listed courses separated by “/” (*e.g.*, STAT101/201); course sequences separated by “-” (*e.g.*, STAT101-102).

- Cal Poly STAT218 Applied statistics for life sciences: S26, Sum25, S25, W25, S24, W24
 STAT545 Applied stochastic processes: W26
 STAT590 Graduate seminar in statistics: W26, W25
 STAT425 Probability theory: F25, F24, F23
- UCSB PSTAT197A-B-C Data science capstone: S23, W23, F22, S22, W22
 PSTAT100 Data science concepts and analysis: S23, S22, W22, S21
 PSTAT126 Regression analysis: F21, Sum21
 PSTAT120 Probability and statistics: F21, Sum21, W21, F20
 PSTAT131/231 Introduction to statistical machine learning: S21, W21
- OSU ST595D Capstone project (TA): W20, F19, S19
 ST565 Time series (TA): W20
 ST558D Multivariate analytics (TA): F19
 ST538D Methods for large and complex data sets (TA): S19
 ST552 Statistical methods (TA): W19
 ST351-352 Introduction to statistical methods (Instructor): Sum18, S18
 ST557 Applied multivariate analysis (TA): F17
 ST412/512 Methods of data analysis (TA): W17, S16
 ST421/521 Introduction to mathematical statistics (TA): Sum16
 ST201-202 Principles of statistics (TA): Sum17, W16, F15

G. Students

In alphabetical order by graduation year.

- Cal Poly **Thesis supervision**
 Emi Degembe, B.S./M.S. Statistics 2027
 Nicole Yee, B.S./M.S. Statistics 2027
 Jose Garcia, B.S./M.S. Statistics 2026
 Nathan Greenfield, M.S. Statistics 2026
 Ruben Jimenez, B.S./M.S. Statistics 2026 (committee)
 Alex Yuan, B.S./M.S. Statistics 2026
 Kyle Bistrain, B.S./M.S. Statistics 2025

Katherine Chan, B.S./M.S. Statistics 2024
 Bena Smith, M.S. Statistics 2024 (committee)

Research mentorship

Otis Hunt, B.S./M.S. Statistics 2028
 Barbara Ibrahim, B.S./M.S. Statistics 2028
 Catherine Mispagel, B.S./M.S. Statistics 2028
 Carson Neubert, B.S./M.S. Statistics 2028
 Emma Hamilton, B.S./M.S. Statistics and B.S. Applied Mathematics, 2027
 Kaviya Veerasingam, B.S. Statistics 2027
 Allen Choi, B.S./M.S. Statistics 2026
 Alvaro Ramos, B.S./M.S. Statistics 2027
 Alea Seifert, B.S./M.S. Statistics 2027
 Emma Reardon, B.S. Environmental Management & Protection 2026
 Andres Rocha, B.S. Statistics and B.S. Applied Mathematics, 2026
 Gabrielle Low, B.S. Statistics 2025
 Tomas Ludin, B.S. Computer Engineering 2025
 Nick Patrick, B.S. Statistics 2025
 Samantha Ward, B.S. Statistics 2025

UCSB

Research mentorship

Jai Uparkar, B.S. Statistics 2024
 Ellen Burrell, B.S. Statistics & B.S. Political Science 2023
 Jennifer Park, B.S. Economics & B.S. Statistics 2023
 Annie Adams, B.S. Statistics 2022
 Nick Alexander, B.S. Statistics 2022
 Mallika Gupta, B.S. Financial Math 2022
 Annie Huang, B.S. Linguistics & B.S. Statistics 2022
 Prerana Kottapalli, B.S. Physics 2022
 Cristian Razo, B.S. Statistics 2022
 Lawrence Su, B.S. Electrical and computer engineering 2022
 Priscilla Siow, B.S. Statistics 2022
 Will Howard, B.S. Statistics 2021
 Shuyun Tang, B.S. Statistics 2021
 Tommy Wang, B.S. Statistics 2021

H. Service

Dept. 2025-2026 Seminar committee chair
 2025-2026 Search committee, tenure-track recruitment
 2025-2026 Statistical consulting service
 2023-2024 Search committee, tenure-track recruitment

Profession Journal reviewer for Nature Communications Biology, Journal of Statistics and Data Science Education.

I. Presentations

In reverse chronological order by section; † indicates student coauthor; * indicates presenter.

- Invited **Trevor D. Ruiz***, Sharmodeep Bhattacharyya, and Sarah C. Emerson. Network recovery from multivariate time series. Department of Statistics Seminar, California Polytechnic State University, San Luis Obispo, CA, USA, November 16, 2023.
- Trevor D. Ruiz***, Awino M. E. Ojwang', Sharmodeep Bhattacharyya, Shirshendu Chatterjee, Peter S. Ojiambo, and David H. Gent. A general framework for spatio-temporal modeling of epidemics with multiple epicenters: application to an aerially dispersed plant pathogen. Department of Statistics Seminar, California Polytechnic State University, San Luis Obispo, CA, USA, November 16, 2023.
- Contributed **Trevor D. Ruiz***, Alea J. Seifert†, Jose Garcia†, Julia C. Schedler, and Emily E. Bockmon. Inference of trend decoupling in nonstationary bivariate time series. Contributed talk, IMS International Conference on Statistics and Data Science, Sevilla, Spain, December 15-18, 2025.
- Trevor D. Ruiz***, Nicholas A. Patrick†, Katherine G. Chan†, and Erin V. Satterthwaite. Variable selection and covariate adjustment in log-contrast models for ecological metabarcoding time series data. Contributed talk, IMS International Conference on Statistics and Data Science, Nice, France, December 16-19, 2024.
- Trevor D. Ruiz*** and Erin V. Satterthwaite. Using environmental DNA to identify ecological indicators associated with marine mammal abundances. Contributed talk, Ocean Observing in California, San Diego, CA, USA, May 14-16, 2024.
- Trevor D. Ruiz*** and Sharmodeep Bhattacharyya. Sparse estimation in high dimensional time series. Contributed poster, Challenges in the Statistical Modeling of Stochastic Processes for the Natural Sciences, Banff International Research Station, Banff, Alberta, Canada, July 9-14, 2017.
- Mentored student presentations Nicole E. Yee*†, Allen Y. Choi†, **Trevor D. Ruiz**, Haley A. Moniz, and Emily N. Taylor. Geographic and environmental drivers of rattlesnake thermoregulation and metabolism. Poster presentation, Bailey College of Science and Mathematics 2026 Student Research Conference, Cal Poly, San Luis Obispo, CA, USA, May 14-15, 2026.
- Kaviya Veerasingam*†, Camille C. Pawlak, Reed J. Kenny, Julia C. Schedler, and **Trevor D. Ruiz**. Urban forest tree allometry. Poster presentation, Bailey College of Science and Mathematics 2026 Student Research Conference, Cal Poly, San Luis Obispo, CA, USA, May 14-15, 2026.

Alea J. Seifert^{*†}, Jose Garcia^{*†}, **Trevor D. Ruiz**, and Emily E. Bockmon. Quality control of Morro Bay estuarine monitoring data to detect disruptions in oxygen-pH coupling. Poster presentation, Bailey College of Science and Mathematics 2026 Student Research Conference, Cal Poly, San Luis Obispo, CA, USA, May 14-15, 2026.

Barbara E. Ibrahim^{*†}, Emi Degembe[†], Lucy Nelson, **Trevor D. Ruiz**, and Alexis Pasulka. Using association networks to explore the ecology of harmful algal blooms in California coastal waters. Poster presentation, Bailey College of Science and Mathematics 2026 Student Research Conference, Cal Poly, San Luis Obispo, CA, USA, May 14-15, 2026.

Nicholas A. Patrick^{*†}, Nathan Greenfield^{*†}, and **Trevor D. Ruiz**. Partial partial least squares regression: a hybrid approach to dimension reduction. Poster presentation, Bailey College of Science and Mathematics 2025 Student Research Conference, Cal Poly, San Luis Obispo, CA, USA, May 15-16, 2025.

Nicole E. Yee^{*†}, Emma M. Reardon^{*†}, **Trevor D. Ruiz**, Haley A. Moniz, and Emily N. Taylor. Modeling the baseline metabolic needs of prairie rattlesnakes (*Crotalus viridis*) based on reproductive status. Poster presentation, Bailey College of Science and Mathematics 2025 Student Research Conference, Cal Poly, San Luis Obispo, CA, USA, May 15-16, 2025.

Emma M. Reardon^{*†}, Nicole E. Yee[†], **Trevor D. Ruiz**, Haley A. Moniz, and Emily N. Taylor. Effects of reproductive status on standard metabolic rate of the prairie rattlesnake (*Crotalus viridis*) at high elevation site with a short active season. Poster presentation, 72nd Annual Meeting of the Western Section of The Wildlife Society, Visalia, CA, USA, February 3-7, 2025.

Shannon Rumsey^{*†}, Edward Ho[†], Chunting Zheng[†], Nealson Setiawan[†], Jennifer Park[†], Meghan Elcheikhali, **Trevor D. Ruiz**, Arinbjörn Kolbeinsson, and Eric J. Daza. Identifying case onset points for early detection of influenza-like illness. Poster presentation, ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Long Beach, CA, USA, August 6-10, 2023.

Lyndsey Umsted^{*†}, Justin Liu[†], Piero Trujillo[†], Ellen Burrell[†], Laura Baracaldo Lancheros, **Trevor D. Ruiz**, Evgeny Noi, Enbo Zhou, and Somayeh Dodge. Understanding and modeling human mobility response to California wildfires. Poster presentation, ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Long Beach, CA, USA, August 6-10, 2023.

Mallika Gupta^{*†}, Annaliese Adams^{*†}, **Trevor D. Ruiz**, and Erin V. Satterthwaite. A scrollytelling primer on hypoxia: developing a data storytelling tool to communicate ocean observing data to California citizens. Contributed

talk, CalCOFI Conference 2022: Innovative Techniques and Novel Applications of Time Series Data to Marine Resource Management, La Jolla, CA, USA, December 5-7, 2022.