

EDWARD A. ROUALDES

eroualdes@csuchico.edu

ORCID: [0000-0002-8757-3463](https://orcid.org/0000-0002-8757-3463)

<https://roualdes.us>

Academic Employment

Associate Professor Department of Mathematics and Statistics, CSU, Chico	2021 - present
IDEA Scholar Center for Computational Mathematics, Flatiron Institute, Simons Foundation	2022 - 2023
Visiting Researcher Center for Computational Mathematics, Flatiron Institute, Simons Foundation	summer 2022
Assistant Professor Department of Mathematics and Statistics, CSU, Chico	2015 - 2021

Education

PhD Statistics , University of Kentucky	2010-2015
MS Economics , Tufts University	2009-2010
BS Mathematics , CSU, Chico	2003-2008
BA Economics <i>with honors</i>	
Minor Business Administration	

Publications

Roualdes, E. A., Ward, B., Carpenter, B., Seyboldt, A., Axen, S. D. *BridgeStan: Efficient in-memory access to the methods of a Stan model*. Journal of Open Source Software (2023). DOI: [10.21105/joss.05236](https://doi.org/10.21105/joss.05236)

Segre, P. S., Gough, W. T., Roualdes, E. A., Cade, D. E., Czapanskiy, M. F., Fahlbush, J., Kahane-Rapport, S. R., Oestreich, W. K., Bejder, L., Bierlich, K.C., Burrows, J. A., Calambokidis, J., Chenoweth, E. M., Clemente, J., Durban, J. W., Fearnbach, H., Fish, F. E., Friedlaender, A. S., Hegelund, P., Johnston, D. W., Nowacek, D. P., Oudejans, M. G., Penry, G. S., Potvin, J., Simon, M., Stanworth, A., Straley, J. M., Szabo, A., Videsen, S. K. A., Visser, F., Weir, C. R., Wiley, D. N., and Goldbogen, J. A. *Scaling of maneuvering performance in baleen whales: larger whales outperform expectations*. Journal of Experimental Biology (2022). DOI: [10.1242/jeb.243224](https://doi.org/10.1242/jeb.243224)

Roualdes, E. A., and Schwertman C. N. *Optimal Pooling of COVID-19 Samples*. College Mathematics Journal (2021). DOI: [10.1080/07468342.2021.1971931](https://doi.org/10.1080/07468342.2021.1971931)

Whelan, C. S., and Roualdes, E. A. *Bringing It All Back Home: An Economic Analysis of Acorn Journeys in Eastern California*. Hunter Gatherer Research (2021).

Roualdes, E. A. *A Rewriting of Stan's Hamiltonian Dynamics: a failed attempt to increase sampling efficiency*. Technical Report 2020.

Banet, A. I., Healy, S. J., Eliason, E. J., Roualdes, E. A., Patterson, D. A., and Hinch, S. G. *Simulated maternal stress reduces offspring aerobic swimming performance in Pacific salmon*. Conservation Physiology (2019). DOI: [10.1093/conphys/coz095](https://doi.org/10.1093/conphys/coz095)

- Whitney, T. D., Sitvarin, M. I., Roualdes, E. A., Bonner, S. J., and Harwood, J. D. *Selectivity underlies the dissociation between seasonal prey availability and prey consumption in a generalist predator*. *Molecular Ecology* (2018). DOI: [10.1111/mec.14554](https://doi.org/10.1111/mec.14554)
- Rounsaville, T., Baskin, C. C., Roualdes, E. A., McCulley, R. L., and Arthur, M. A. *Seed dynamics of the liana *Euonymus fortunei* and implications for invasibility*. *Torrey Botanical Society* (2018). DOI: [10.3159/TORREY-D-17-00033](https://doi.org/10.3159/TORREY-D-17-00033)
- Zou, C., Pearce, R. C., Grove, J. H., Coyne, M. S., Roualdes, E. A., and Li, Y. *The Stability of indicators for net soil nitrogen mineralization in tobaccos rotation and tillage systems*. *Soil Science Society of America Journal* (2017). DOI: [10.2136/sssaj2017.08.0263](https://doi.org/10.2136/sssaj2017.08.0263)
- Van Dusen, B., J-S. S., Roualdes, E. A. *The impact of learning assistants on inequities in physics student outcomes*. *Physics Education Research Conference (PERC) 2016 proceedings*.
- Van Dusen, B., J-S. S., Roualdes, E. A. *The systemic impacts of learning assistants on student learning of physics*. *Physics Education Research Conference (PERC) 2016 proceedings*.
- Fenger, C. K., Tobin, T., Casey, P. J., Roualdes, E. A., Langemeier, J. L., Cowles, R., and Haines, D. M. *Enhanced bovine colostrum supplementation shortens the duration of respiratory disease in thoroughbred yearlings*. *Journal of Equine Veterinary Science*, 42:77 – 81, 2016. DOI: [10.1016/j.jevs.2016.03.012](https://doi.org/10.1016/j.jevs.2016.03.012)
- Roualdes, E. A., Bonner, S. J., Whitney, T. D., Harwood, J. D. *Formal modelling of predator preferences using molecular gut-content analysis*. *Environmental and Ecological Statistics*, 23(2):317 – 336, 2016. DOI: [10.1007/s10651-016-0341-3](https://doi.org/10.1007/s10651-016-0341-3)
- Roualdes, E. A. *Bayesian Trend Filtering*. arXiv.org <http://arxiv.org/abs/1505.07710>
- Fenger, C. K., Tobin, T., Casey, P. J., Roualdes, E. A., Langemeier, J., Haines, D. M. *Comparative Exercise Physiology 11/2014; 10(4):233-238. Bovine colostrum supplementation optimises earnings, performance and recovery in racing Thoroughbreds*. DOI: [10.3920/CEP140023](https://doi.org/10.3920/CEP140023)

Courses Taught

CSCI 111 Programming and Algorithms I

Introduction to computer programming; taught in C++

CSCI/MATH 385 Introduction to Data Science

Introductory data science; taught in R or Python

MATH 105 Introduction to Statistics

Introduction to statistics for non-majors

MATH 130 Introduction to R

Interdisciplinary introduction to computer programming; taught in R

MATH 314 Probability and Statistics for Science and Technology

Statistics directed towards, but not limited to, computer science and engineering majors; taught in Python or R; [WIP lecture notes in Python](#)

MATH 315 Statistical Methods I

Statistics directed towards, but not limited to, various earth science majors; taught in R

MATH 350, 351, 450 Introduction to Probability and Statistics I,II,II

Three course sequence of calculus based introduction to probability and statistics; taught with R

Grants

Central Valley Improvement Act – US Bureau of Reclamation/US Fish and Wildlife Contract. Role: Collaborator, \$108,398. Total amount: \$9,986,807.	2020
AB 798 Round 2: College Textbook Affordability Act of 2015. Role: co-PI, \$46,000	2019
Affordable Learning Solutions . Role: co-PI, \$15,000	2018
AB 798: College Textbook Affordability Act of 2015 Role: co-PI, \$50,000	2017
Textbook Affordability Project . Role: Collaborator, \$1,000 each	2016, 2017, 2018

Referee

Journal of Statistical Computation and Simulation
Bayesian Analysis

Software Development

Developer for BridgeStan: Efficient in-memory access to the methods of a Stan model.

<https://github.com/roualdes/bridgestan>

Developer for Stan: probabilistic programming language for statistical inference.

<https://mc-stan.org/>

Roualdes, E. A. btf: Estimates univariate function via Bayesian trend filtering. R package version 1.0. <http://cran.r-project.org/web/packages/btf/index.html>

Roualdes, E. A., Bonner, S. J., spiders: fits predator preferences model. R package version 1.0.

<https://github.com/roualdes/spiders>

Roualdes, E. A. NextAllele: a bioinformatic program written in Python to phase haplotypes of diploid animals. <https://code.google.com/p/nextallele/>

Presentations

Roualdes, E. A. Presented at the [Affordable Learning Solutions Annual Conference](#). Long Beach, CA, 2020.

Esposito, C. M., Mehl, S., Houk, E., Brown, D., Roualdes, E. A. *Incorporating Projected Land Use Changes into the CVHM*. Presented at the California Water and Environmental Modeling Forum. Folsom, CA, 2019.

Roualdes, E. A. *Using Python for Exploratory Data Analysis*. Data Science Seminar Series, California State University, Chico, 2018.

Roualdes, E. A. *An Introduction to Bayesian Statistics*. Department of Mathematics's Colloquium Series, Humboldt State University, 2018.

Roualdes, E. A. *Introduction to Bayesian Modelling*. Data Science Seminar Series, California State University, Chico, 2018.

Roualdes, E. A. *An Introduction to Bayesian Statistics*. Department of Mathematics and Statistics's Colloquium Series, California State University, Chico, 2018.

Roualdes, E. A. *An Introduction to Expectation-Maximization Algorithms*. Department of Economics's Brown Bag Series, California State University, Chico, 2016.

Fenger, C. K., Tobin, T., Casey, P. J., Roualdes, E. A., Langemeier, J., Haines, D. M. *Bovine Colostrum Supplementation Improves Earnings, Performance and Recovery in Racing Thoroughbreds*. International Conference of Racing Analysts and Veterinarians, 2014, Mauritius

Roualdes, E. A. *Bayesian trend filtering*. Joint Statistical Meeting, 2014, Boston, MA

Mays, H. L. Jr., McKay, B. D., Hoffman, S., Spinelli, M., Weisrock, D., O'Neill, E., Roualdes E. A., Nishiumi, I., Yao, C., Wu, Y., Li, H., Zou, F. *The utility of microfluidics PCR libraries and other next-generation sequencing approaches in avian phylogeography: A case study for Light-vented (Pycnonotus sinensis) and Taiwan Bulbuls (Pycnonotus taiwanus)*. International Ornithological Congress, 2013, Tokyo, Japan

Roualdes, E. A., O'Neill E., Weisrock, D. *NextAllele: a bioinformatic pipeline for next generation sequence data*. Dominican University of California, 2012, San Rafael, CA

Roualdes, E. A., Yoshida, R. *Nonparametric species delimitation*. International Symposium of Mathematical Programming, 2012, Berlin, Germany, *invited*

Roualdes, E. A., Yoshida, R. *Nonparametric species delimitation*. Society for Industrial and Applied Mathematics, 2012, Minneapolis, MN

Roualdes, E. A. *Calculating the ECDF via computationally efficient binning*. University of Kentucky, 2011, Lexington, KY

Poster Presentations

Roualdes, E. A., O'Neill E., Weisrock, D. *NextAllele: a bioinformatic pipeline for next generation sequence data*. Joint Statistical Meeting, 2013, Montreal, Canada

Awards

R.L. Anderson Research Award, University of Kentucky, Department of Statistics	2014
Economic Service Award, CSU, Chico, Economics Department	2008
Wall Street Journal Award for Achievement, CSU, Chico, Economics Department	2008
Lt. Robert Merton Rawlins Merit Award, CSU, Chico	2007
John Smale Award for Excellence in Economics, CSU, Chico, Economics Department	2006