Curriculum Vitae

JENNIFER A. HOETING

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Colorado State University
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Education

Ph.D.	Statistics, University of Washington, 1994
M.S.	Statistics, University of Washington, 1991
B.S. with distinction	Statistics and Psychology, University of Michigan, 1988

Experience

2010–present	Professor, Dept of Statistics, Colorado State University
2002–2010	Associate Professor, Dept of Statistics, Colorado State University
1996–2002	Assistant Professor, Dept of Statistics, Colorado State University
1994–1996	Special Assistant Professor Dept of Statistics, Colorado State University
2013-2014	Acting Department Chair, Department of Statistics, CSU (6 months)
2012–2013	Faculty Search/Equal Opportunity Coordinator, College of Natural Sciences, CSU

Sabbaticals

2019–2020	University of California Santa Cruz, Department of Statistics
2009–2010	Commonwealth Scientific and Industrial Research Organisation (CSIRO) Brisbane, Australia
2003	University of Otago, Dept of Mathematics and Statistics, Dunedin, New Zealand

Honors

Best Environmetrics paper of 2018. Awarded by The International Environmetrics Society (TIES) for "Remote Effects Spatial Process Models for Modeling Teleconnections," by Hewitt, Hoeting, Done, Towler

Professor Laureate, College of Natural Sciences, Colorado State University, 2015 - 2017

Distinguished Achievement Medal, Section on Statistics and the Environment (ENVR) of the American Statistical Association, 2015

Fellow of the American Statistical Association, awarded 2013

Colorado State University Alumni Association Best Teacher Award nominee, nominated by former students, 1999 and 2009

Outstanding Science Mentor Award, Students as Leaders in Science, Colorado State University, 2008

Colorado State University College of Natural Sciences Faculty Undergraduate Teaching Award, 2001-2002

Women in Science Initiative award to recruit women to graduate programs in the sciences, University of North Carolina, Greensboro, Fall 1999

National Science Foundation Academe/Industry Collaboration, Invited Member, 1995–1997

Publications

Publications: Books

Handbook of Environmental and Ecological Statistics (2019). Edited by A. E. Gelfand, M. Fuentes, J. A. Hoeting, R. L. Smith. Chapman & Hall/CRC, Boca Raton, 882 pages.

Givens, Geof H. and Jennifer A. Hoeting (2013). *Computational Statistics*, Second Edition, John Wiley & Sons, New York, 469 pages. Book website with code and examples: `www.stat.colostate.edu/computationalstatistics/`

Givens, Geof H. and Jennifer A. Hoeting (2005). *Computational Statistics*, First Edition, John Wiley & Sons, New York, 418 pages.

Publications: Peer Reviewed (* indicates student co-author)

*Done, J.M., R. E. Morss, H. Lazrus, E. Towler, M. R. Tye, M. Ge, T. Das, A. Munévar, J. Hewitt, J. A. Hoeting. (2021) "Towards Usable Predictive Climate Information at Decadal Timescales," submitted.

Gorsich, E.E., C.T. Webb, A.A. Merton, J.A. Hoeting, R.S. Miller, M.L. Farnsworth, S.R. Swafford, T.J. DeLiberto, K. Pedersen, A.B. Franklin, R.G. McLean, K.R. Wilson, P.F. Doherty, Jr. (2021) "Continental-scale dynamics of avian influenza in U.S. waterfowl are driven by migration and temperature," *Ecological Applications*, 31(2):e02245.

*Leach, C., J.A. Hoeting, K. Pepin, A. Eiras, M. Hooten, C. Webb (2020) "Linking mosquito surveillance to dengue fever through Bayesian mechanistic modeling," *PLOS Neglected Tropical Diseases*, 14(11): e0008868.

*Weller, Z. D. and Hoeting, J. A. (2020). "A Nonparametric Spectral Domain Test of Spatial Isotropy" *Journal of Statistical Planning and Inference*, 204: 177186.

*Hewitt, J., M. J. Fix, J. A. Hoeting, D. S. Cooley (2019)"Improved return level estimation via a weighted likelihood, latent spatial extremes model" *Journal of Agricultural, Biological, and Environmental Statistics (JABES)*, 24:3, 426–443.

Sofaer, H. R., J. A. Hoeting, C. S. Jarnevich (2019) "The area under the precision-recall curve as a performance metric for rare binary events" *Methods in Ecology and Evolution*, 10:565–577.

*Sun, L., C. Lee and J. A. Hoeting (2019) "A penalized simulated maximum likelihood method to estimate parameters for SDEs with measurement error" *Computational Statistics*, 34(2), 847–863.

*Hewitt, J., J. A. Hoeting, J. Done, E. Towler (2018) "Remote Effects Spatial Process Models for Modeling Teleconnections" *Environmetrics*, 29:e2523. Winner of (1) 2018 Wiley-TIES Best Environmetrics Paper Award and (2) American Statistical Association, Section on Statistics and the Environment, 2017 Student Paper Competition for Joshua Hewitt.

*Weller, Z. D., Hoeting, J. A., von Fischer J. C (2018) "A Calibration-Capture-Recapture Model for Inferring Natural Gas Leak Population Characteristics using data from Google Street View Cars" *Environmetrics*, ;29:e2519.

*Pepin, K. M., S. L. Kay, B. Golas, S. S. Shriner, A. T. Gilbert, R. S. Miller, A. Graham, S. Riley, P. Cross, M. D. Samuel, M. Hooten, J. A. Hoeting, J. O. Lloyd-Smith, C. T. Webb, M. G. Buhnerkempe (2017), "Inferring infection risk in wildlife populations by linking data across the individual and population-level scales", *Ecology Letters*, 20:275-292.

*Weller, Z.D. and J. A. Hoeting (2016) "A review of Nonparametric Hypothesis Tests of Isotropy Properties in Spatial Data," *Statistical Science*, 31:3, 305-324.

Sofaer, H.R., S.K. Skagen, J.J. Barsugli, B. S. Rashford, G. C. Reese, J.A. Hoeting, A.W. Wood, B.R. Noon (2016) "Projected wetland densities under climate change: habitat loss but little geographic shift in conservation strategy," *Ecological Applications*, 26:6, 1677-1692.

*Buhnerkempe, M. G., C.T. Webb, A.A. Merton, J.E. Buhnerkempe, G.H. Givens, R.S. Miller, J.A. Hoeting (2016) Identification of migratory bird flyways in North America using community detection on biological networks, *Ecological Applications*, 26:3, 740-751.

French, J. P. and J. A. Hoeting (2016) Credible Regions for Exceedance Sets of Geostatistical Data, *Envirometrics*, 27:4–14.

*Geremia, C., M. W. Miller, J. A. Hoeting, M. F. Antolin, N. T. Hobbs (2015) Bayesian Modeling of Prion Disease Dynamics in Mule Deer using Population Monitoring and Capture-Recapture Data, *PLOS One*, DOI:10.1371.

*Sun, L., C. Lee and J. A. Hoeting (2015) Parameter inference and model selection in deterministic and stochastic dynamical models via approximate Bayesian computation: modeling a wildlife epidemic, *Environmetrics*, 26: 451-462.

*Geremia, C., J. A. Hoeting, L.L. Wolfe, N. L. Galloway, M. F. Antolin, T. R. Spraker, M. W. Miller, N. T. Hobbs (2015) Age and Repeated Biopsy Influence Antemortem PrP^{CWD} Testing in Mule Deer (*Odocoileus Hemionus*) in Colorado, *Journal of Wildlife Diseases*, 51(4): 801-810.

*Schliep, E.M., J.A. Hoeting (2015) Data augmentation and parameter expansion for spatially correlated ordinal data, *Computational Statistics and Data Analysis* 90, 1–14.

*Hanks, E. M. , E. Schliep, M. B. Hooten and J. A. Hoeting (2015) Restricted Spatial Regression in Practice: Geostatistical Models, Confounding, and Robustness under Model Misspecification, *Environmetrics*, 26: 243-254.

*Sun, L., C. Lee and J. A. Hoeting (2015) A penalized simulated maximum likelihood approach in parameter estimation for stochastic differential equations, *Computational Statistics and Data Analysis*, 84: 54-67 (Winner of American Statistical Association, Section on Statistics and the Environment, 2013 Student Paper Competition for Libo Sun).

*Geremia, C., P. J. White, J. A. Hoeting, R. L. Wallen, R.G. R. Watson, D. Blanton, N. T. Hobbs (2014) Integrating Population and Individual Level Information in a Movement Model of Yellowstone Bison, *Ecological Applications*, 24:2,346–362.

*Schliep, Erin M. and J. A. Hoeting (2013). Multivariate multilevel latent Gaussian process model to evaluate wetland condition, *Journal of Agricultural, Biological, and Environmental Statistics (JABES)*, 18:4, 492-513, DOI 10.1007/s13253-013-0136-z.

K. M. Pepin, J. Wang, C. T. Webb, J. A. Hoeting, M. Poss, P. J. Hudson, W. Hong, H. Zhu, Y. Guan, S. Riley (2013) Anticipating the incidence of avian influenza subtypes H9 and H5 in live-bird markets, *PLoS One*, 8:2, e56157.

*Burch, N., J. A. Hoeting, D. Estep (2012). Optimal design and directional leverage with applications in differential equation models. *Metrika*, 75:7, 895:911.

Williams, M. S., E. C. Ebel, J. A. Hoeting, and J. L. Withee (2012). A Bayesian Approach for Calibrating Risk Assessment Models. *Novel Approaches and their Applications in Risk Assessment*. (Yuzhou Luo, editor). InTech, p 297-316.

*Meyer, M. C., A. Hackstadt, and J. A. Hoeting (2011). Bayesian Estimation and Inference for Generalized Partial Linear Models Using Shape-Restricted Splines. *Journal of Nonparametric Statistics*, **23:4**, 867-884.

Johnson, D. S. and J. A. Hoeting (2011). Bayesian Multimodel Inference for Spatial Regression Models. *PLoS ONE* 6(11): e25677. doi:10.1371/journal.pone.0025677.

Williams, M. S., E. D. Ebel, J. A. Hoeting (2011) "Bayesian Analysis for Food-Safety Risk Assessment: Evaluation of Dose-Response Functions within WinBUGS" *Journal of Statistical Software*, Vol 43, Code Snippet 2.

*Johnson, D. S. and J. A. Hoeting (2011). Properties of Graphical Regression Models for Multidimensional Categorical Data, *Statistics and Probability Letters*. **81**, 1471-1475.

Merrill, S. C., S. Walter, F. B. Peairs, and J. A. Hoeting (2011). Spatial Variability of Western Bean Cutworm (Lepidoptera: Noctuidae) Pheromone Trap Captures in Sprinkler Irrigated Corn in Eastern Colorado. *Environmental Entomology*, 40(3):654-600.

*Higgs, M. D., J. A. Hoeting (2010). A Clipped Latent-Variable Model for Spatially Correlated Ordered Categorical Data. *Computational Statistics and Data Analysis*. 54:8, 1999-2011.

*McClintock, B. T., J. A. Hoeting (2010). Bayesian analysis of abundance for binomial sighting data with unknown number of marked individuals. *Environmental and Ecological Statistics*, 17:317-332.

Schmidt, A., J. A. Hoeting, J. B. M. Pereira, P. P. Vieira (2010). Mapping Malaria in the Amazon Rain Forest: a Spatio-Temporal Mixture Model. In *The Handbook of Bayesian Analysis*

*Schliep, E. M., D. Cooley, S. R. Sain, J. A. Hoeting (2010). A Comparison Study of Extreme Precipitation from Six Different Regional Climate Models via Spatial Hierarchical Modeling. *Extremes*, 13:219–239.

*Webb, C.T., J. A. Hoeting. G. M. Ames, M. I. Pyne, N. L. Poff (2010). A structured and dynamic framework to advance traits-based theory and prediction in ecology. *Ecology Letters*, 13: 267-283.

*Givens, G. H., J. A. Hoeting, and L. Beri (2010). Factors that Influence Aerial Line Transect Detection of Bering-Chukchi-Beaufort Seas Bowhead Whales. *Journal of Cetacean Research and Management*, 11(1): 9-16.

*Irvine, K, A. I. Gitelman, J. A. Hoeting (2007). Spatial Designs and Properties of Spatial Correlation: Effects on Covariance Estimation. *Journal of Agricultural, Biological and Environmental Statistics*, 12:4, 450–469.

*Farnsworth, M. L., J. A. Hoeting, N. T. Hobbs, M. M. Conner, K. P. Burnham, L. L. Wolfe, E. S. Williams, D. M. Theobald, M. W. Miller (2007). The Role of Geographic Information Systems in Wildlife Landscape Epidemiology: Models of Chronic Wasting Disease in Colorado Mule Deer. Veterinaria Italiana, 43:3, 571–580.

*Johnson, D. S., J. A. Hoeting and N. L. Poff (2006). Biological monitoring: A Bayesian Model for Multivariate Compositional Data. In *Bayesian Statistics and its Applications* (S. K. Upadhyay, U. Singh and D. K. Dey, editors), Anamaya publishers: New Delhi, p 270–289.

*Hoeting, J. A., R. A. Davis, A. A. Merton, and S. E. Thompson (2006). Model Selection for Geostatistical Models. *Ecological Applications*, 16(1), 87–98.

*Farnsworth, M. L., J. A. Hoeting, N. T. Hobbs, M. W. Miller (2006). Linking Mule Deer Movement Scales to the Spatial Distribution of Chronic Wasting Disease: A Hierarchical Bayesian Approach. *Ecological Applications*, 16(3), 1026–1036.

*Reese, G. C., K. R. Wilson, J. A. Hoeting, C. H. Flather (2005). Factors affecting Species Distribution Predictions: A Simulation Modeling Experiment. *Ecological Applications*, 15:2, 554–564.

Hoeting, J. A., R. L. Tweedie and C. S. Olver (2003). Transform Estimation of Parameters for Stage-Frequency Data. *Journal of the American Statistical Association*, 98:463, 503–514.

*Johnson, D. S. and J. A. Hoeting (2003). Autoregressive Models for Capture-Recapture Data: A Bayesian Approach. *Biometrics*, 59:340–349.

Hoeting, J. A., A. E. Raftery, and D. Madigan (2002). Bayesian Variable and Transformation Selection in Linear Regression. *Journal of Computational and Graphical Statistics*, **11**:3, 485–507.

*Heermann, D.F., J. A. Hoeting, S. E. Thompson, H. R. Duke, D. G. Westfall, G. W. Buchleiter, P. Westra, F. B. Peairs, and K. F. Fleming (2002). Interdisciplinary Irrigated Precision Farming Research. *Precision Agriculture*, **3**, 47–61.

*Hoeting, J. A., M. Leecaster, and D. Bowden (2000). An Improved Model for Spatially Correlated Binary Responses. *Journal of Agricultural, Biological, and Environmental Statistics*, **5**:1, 102–114.

Heermann, D.F., J. A. Hoeting, *et al.* (2000). Irrigated Precision Farming for Corn Production. In *Proc. of the Second International Conference on Geospatial Information in Agriculture and Forestry*, Lake Buena Vista, Florida, p. I-144–I-151.

Hoeting, J. A., D. Madigan, A. E. Raftery, and C. T. Volinsky (1999). Bayesian Model Averaging: A Tutorial (with discussion). *Statistical Science*, **14**:4, 382–417.

Heermann, D.F., J. A. Hoeting, *et al.* (1999). Interdisciplinary Irrigated Precision Farming Team Research. In *Proc. of 2nd European Conf. on Precision Agriculture* (J.V. Stafford, editor), 121–130.

Hoeting, J. A. and J. G. Ibrahim (1998). Bayesian Predictive Simultaneous Variable and Transformation Selection in the Linear Model. *Computational Statistics and Data Analysis*, **28**, 87–103.

Hoeting, J. A. and A. Olsen (1998). Are the fish safe to eat? Assessing mercury levels in fish in Maine lakes. *Statistical Case Studies: A Collaboration Between Academe and Industry* (R. Peck, L. Haugh, A. Goodman, editors), pages 1–13. ASA-SIAM.

Hoeting, J. A. and A. Olsen (1998). Book for students including the chapter "Are the fish safe to eat? Assessing mercury levels in fish in Maine lakes." *Statistical Case Studies: A Collaboration Between Academe and Industry, Student Edition* (R. Peck, L. Haugh, A. Goodman, editors), pages 1–6. ASA-SIAM.

Hoeting, J. A. (1998). Sandbars in the Colorado River: an Environmental Consulting Project. *Statistical Science*, **13**, 9–13.

Raftery, A.E., D. Madigan, and J. A. Hoeting (1997). Bayesian Model Averaging for Linear Regression Models. *Journal of the American Statistical Association*, **92**, 179–191.

Hoeting, J. A., D. Madigan, and A. E. Raftery (1996). A Method for Simultaneous Variable Selection and Outlier Identification in Linear Regression. *Computational Statistics and Data Analysis*, **22**, 251–270.

Madigan, D., A. E. Raftery, C. T. Volinsky, and J. A. Hoeting (1996). Bayesian Model Averaging. *Integrating Multiple Learned Models (IMLM-96)*, (P. Chan, S. Stolfo, and D. Wolpert, eds), 77–83.

Publications: Invited Comments, Invited White Papers, and Book Reviews

*L. Wang and J. A. Hoeting (2013) Discussion of "How to find an appropriate clustering for mixed type variables with application to socio-economic stratification" by Christian Hennig and Tim F. Liao *Journal of the Royal Statistical Society Series C.* **62:3**,1-25.

D. Cooley and J. A. Hoeting (2011) Discussion of "An explicit link between Gaussian fields and Gaussian Markov random fields: the stochastic partial differential equation approach" by F. Lindgren, H. Rue, and J. Lindstrom. *Journal of the Royal Statistical Society B.* **73:4**,470.

K. Ogle, J. A. Hoeting, N. Cressie, R. Smith, S. Lele, R. McRoberts, L. Stefanski, G. Ziv (2011) White paper: "Measuring, Monitoring, and Forecasting Progress toward Sustainability," in Mathematical and Statistical Challenges for Sustainability. A report of a National Science Foundation Workshop held November 15–17, 2010. p 102-118.

Hoeting, J.A. (2009). The Importance of Accounting for Spatial and Temporal Correlation in Analyses of Ecological Data. *Ecological Applications*, 19:3, 574–577.

Hoeting, J. A. (2006). Some Perspectives on Modeling Species Distributions. Discussion of article by A. E. Gelfand, J. A. Silander, S. Wu, A. Latimer, P. O. Lewis, A. G. Rebelo, M. Holder. *Bayesian Analysis*, 1:1, 93–98.

Hoeting, J. A. (1997). Review of *Statistics and Data Analysis* by Siegel and Morgan, *The American Statistician*, **51**, 93–94.

Publications: Other

*Johnson, D. S. and J. A. Hoeting (2003). Random Effects Graphical Models for Multiple Site Sampling Technical Report 2003/15, Department of Statistics, Colorado State University.

Hoeting, J. (2002). Methodology for Bayesian Model Averaging: An Update, In *Proceedings - Manuscripts of invited paper presentations, International Biometric Conference*, Freiburg, Germany, 231-240.

Hoeting, J. A., R. L. Tweedie (2001). Parameter Estimation for Models of Biological Stage-Frequency Data, In *Proceedings of the Graybill Conference*, 2001, 177-210.

*Johnson, D.S., J. A. Hoeting, R. L. Tweedie (2001). Empirical Transform Estimation of Parameters in the Monomolecular Growth Model. Technical Report 2001-5, Department of Statistics, Colorado State University.

*Young, G., J. A. Hoeting, and B. G. Brown (2000). Applying the Autologistic Function with Covariates to Estimate Aircraft Icing Fields. In *Preprints 15th Conference on Probability and Statistics in the Atmospheric Sciences*. 8-11 May, Asheville, NC, American Meteorological Society (Boston), 50–53.

*Hoeting, J. A., M. Van Caster, and D. Bowden (1997). Technical report submitted to the U.S. Forest Service. Included 3 papers: 1. An Improved Model for Spatially Correlated Binary Responses, 2. Sampling Methodology for Detecting Rare Species, 3. Temporal Modeling of Probability of Species Presence.

*Hoeting, J. A., K. Varga, and B. Cluer (1997). Predicting Colorado River Sandbar Size Using Glen Canyon Dam Release Characteristics. Technical report for the National Park Service, 54 pp.

Hoeting, J. A. (1994) Accounting for Model Uncertainty in Linear Regression. Ph.D. dissertation, Department of Statistics, University of Washington.

Grants and Contracts

Over $14.5 million in external funding as PI, Co-PI, or similar

Current Grants and Contracts

USDA, Center for Epidemiology and Animal Health — $130,712
Cattle Fever Tick Eradication Program, PI, 9/21-9/22.

USDA, Center for Epidemiology and Animal Health — $121,978
Bayesian models and methods to improve understanding of disease risk at the wildlife-livestock interface, PI, 9/20-9/21

USDA, Center for Epidemiology and Animal Health — $1.05 million
Statistical methodologies for quantifying risk-based sampling. Continuous funding via annual cooperative agreements, PI, 10/14 – 9/22.

USDA, Animal and Plant Health Inspection Service — $422,142
Development of Survey Sampling Methods and Tools for the USDA National Animal Health Monitoring System (NAHMS), PI. Continuous funding via annual cooperative agreements, 9/18 – 9/21.

Completed Grants and Contracts (PI, Co-PI, or similar)

National Science Foundation — $ 1,855,000
EaSM-3: Integration of Decision-Making with Predictive Capacity for Decadal Climate Impacts (PI for CSU's portion; collaborative proposal with NCAR). 10/1/14- 9/30/20.

USGS — $96,972
Statistical Methods to Improve and Assess Species Distribution Models, PI, 9/17 – 8/20.

National Science Foundation — $449,978
Long Term Research in Environmental Biology (LTREB): Understanding controls on state-transition on Yellowstone's northern range, Co-PI (PI: N. T. Hobbs, other Co-PIs D. J. Cooper & M. J. Kauffman) 01/01/2012–12/31/2016

National Science Foundation — $2,500,000
Bayesian Hierarchical Modeling of Disease Dynamics - A Case Example Using Chronic Wasting Disease, Co-PI (PI: N.T. Hobbs, other Co-PIs: M. Miller, S. Tavener, M. Antolin, R. Boone) 8/1/2009–07/31/2015.

National Science Foundation $39,852
Hurricane damage and forecast assessment (PI for subcontract of NSF Grant DMS-1107046, Research Network for Statistical Methods for Atmospheric and Oceanic Sciences). 5/14/14-8/30/15

National Science Foundation $412,550
Landscape Configurations in Yellowstone National Park: An Alternative State Stabilized by Herbivory?, Co-PI (PI: D. Cooper, other Co-PIs: D. Theobald, T. Hobbs, B. Baker) 2007–2011.

U.S. Department of Agriculture, APHIS $141,696
Modeling Avian Influenza, PI with C. Webb, 10/2009-8/2011.

U.S. Environmental Protection Agency $297,818
Basinwide Wetland Profile of the North Platte River Basin in Colorado, Co-PI (PI J. Lemly) 01/01/2009–12/31/2011.

U.S. Department of Agriculture, Food Safety and Inspection Service $19,000
Statistical Support for Chemical and Microbiological Risk Assessments, Sole PI, 9/2009–8/2010.

U.S. Department of Agriculture, APHIS-WS-NWRC $500,000
Avian Influenza Risk Assessment for the United States: Modeling Pathways of Disease Spread by Wild Birds, Member of coordinating committee (similar to a CO-PI), 4/2007–4/2009.

National Science Foundation $3,261,000
IGERT Program in Interdisciplinary Mathematics, Ecology and Statistics (PRIMES), Proposal co-author, 2003–2008.

U.S. Department of Agriculture, Agriculture Research Service $11,669
Zero inflated Poisson models for agricultural data, Principal Investigator, 2007.

Environmental Protection Agency $3,000,000
STARMAP: Applying Spatial and Temporal Modeling of Statistical Surveys to Aquatic Resources, Project P.I. for $971,177 (Grant PIs: N.S. Urquhart and R. Davis) 2001–2006.

U.S. Department of Agriculture, Agriculture Research Service $52,540
Statistical Modeling for Farming Operations, Principal Investigator, 2001-2006.

National Science Foundation $37,975
New Approaches to Statistical Analysis of Ecological Data: Proposal for a Workshop, Proposal co-author, 2003.

National Science Foundation $75,000
Methodology for Spatial Models for Binary Data, Principal Investigator, 1998–2000.

U.S. Department of Agriculture, Agriculture Research Service $115,000
Statistical Modeling for Farming Operations, PI, 1997–2000.

United States Forest Service $75,000
Surveying and Monitoring Rare Populations, PI (with D. Bowden), 1995–7.

Thos. Y. Pickett & Company $2300
Colorado Property Assessment, Principal Investigator, 1996-7.

Colorado State University $4900
Career Enhancement Grant, Principal Investigator, 1996.

National Atmospheric Deposition Program $5000
The impact of catch efficiency on acid deposition concentrations, PI, 1996.

National Park Service $10,650
Statistical Analysis of Aerial Photography Data Base from the GCES-II Test Flow Program, Principal Investigator, 1995–6.

National Atmospheric Deposition Program $9000
Acid Deposition, Principal Investigator, 1995.

Colorado State University $1000
Investing in Instruction, Principal Investigator, 1995.

Colorado State University $3800
Diversity Career Enhancement Grant, A Simultaneous Bayesian Method for Variable Selection, Outlier Identification, and Transformation Selection, PI, 1995.

Completed Grants and Contracts, Investigator

USGS $281,042
Mapping, Forecasting and Simulating Invasive Species and their Impacts on Natural and Social System, Investigator (PI: P. Evangelista) 9/1/16–8/31/18.

Environmental Defense Fund $166,364
Methane mapping at CSU: Data Analysis Support, Investigator (PI: J. von Fischer). 2016.

U.S. Department of Agriculture, APHIS $236,589
Local cattle movement models, Investigator (PI C.T. Webb), 01/2011–08/2013

National Science Foundation $2,200,000
Spatial and Temporal Dynamics of Prion Disease in Wildlife: Responses to Changing Land Use Investigator (PI: N.T. Hobbs) 2000–2005.

U.S. Department of Agriculture, Agriculture Research Service $884,132
Multi-disciplinary precision farming strategies to increase profitability and sustainability in the Western Great Plains, Investigator, 2000–03.

Colorado State University $100,000
Agricultural Experiment Station, Interdisciplinary Research to Enhance Precision Farming Agronomic Outcomes, Investigator, 1997–2000.

Presentations and Workshops

Short Courses and Workshops Conducted

1. "A statistical view of deep learning in ecology", International Statistical Ecology Conference (virtual, originally scheduled in person), 6 hours, Sydney, Australia, 2020, June 2020.
2. "Statistical parameter estimation and inference for dynamical models," SIAM Uncertainty Quantification UQ18, 2 hours, Orange County, CA, April 2018.
3. "Bayesian statistics and Monte Carlo integration strategies," First Annual Graduate Workshop on Environmental Data Analytics, NCAR, Boulder, CO, July 29-30, 2014
4. "Methods for Monte Carlo Integration and Optimization", CSIRO, Brisbane, Australia, with G. H. Givens, December 9, 2009.
5. "Computational Statistics: Methods for Optimization and Monte Carlo Integration", Joint Statistical Meetings, one day, Denver, CO, with G. H. Givens, August 4, 2008.

6. "Computational Statistics: Methods for Optimization and Monte Carlo Integration", Joint Statistical Meetings, one day, Seattle, WA, with G. H. Givens, August 6, 2006.
7. "Computational Statistics: Methods for Optimization and Monte Carlo Integration with applications in R", Alaska Chapter of the American Statistical Association, Juneau, AK, with G. H. Givens, July 18 and 19, 2006.
8. "An Introduction to Bayesian Data Analysis," NSF funded Program for Interdisciplinary Mathematics, Ecology, and Statistics Workshop on Bayesian Methods in Wildlife Population Monitoring, 2 hours, Fort Collins, CO, June 2006.
9. "Computational Statistics: Methods for Optimization and Monte Carlo Integration", Joint Statistical Meetings, one day, Minneapolis, MN, with G. H. Givens, August 2005.
10. "Methods of integration for environmental problems in statistics: quadrature, Monte Carlo integration and Markov chain Monte Carlo methods", Computational Environmetrics Conference, sponsored by the University of Chicago and the American Statistical Association Section on Statistics and the Environment, 1/2 day, Chicago, with G. H. Givens, Oct 2004.
11. "Optimization methods for environmental problems in statistics: Numerical maximum likelihood, combinatorial optimization, EM Algorithm," Computational Environmetrics Conference, sponsored by the University of Chicago and the American Statistical Association Section on Statistics and the Environment, 1/2 day, Chicago, with G. H. Givens, Oct 2004.

Keynote Speaker

1. Plenary speaker, International Statistical Ecology Conference, Scotland, 2018
2. Keynote speaker, Stats+Climate, Oslo, Norway, 2013.
3. J. Stuart Hunter Lecture, Conf. of the International Environmetrics Society (TIES), Alaska, 2013.
4. Plenary speaker, Bayes on the Beach, Stradbroke Island, Australia, 2009.

Invited talks

1. International Statistical Ecology Conference (virtual, originally scheduled in person), Sydney, Australia, 2020. "Deep learning: opening the black box"
2. IMS New Researchers Conference, Fort Collins, CO, 2019.
3. 2019 Electronic Undergraduate Statistics Research Conference, 2019
4. 2018 Electronic Undergraduate Statistics Research Conference, 2018
5. Statistical Ecology and Environmental Monitoring conference, New Zealand, 2017
6. Challenges in the Statistical Modeling of Stochastic Processes for the Natural Sciences, Banff International Research Station, Canada, 2017.
7. Joint Statistical Meetings, Chicago, IL, 2016.
8. ENVR Workshop on Bayesian Environmetrics, Columbus, Ohio, 2016.
9. SAMSI Opening Workshop for the Program on Mathematical and Statistical Ecology, RTP, NC, 2014.
10. Graybill/ENVR Conference, Fort Collins, CO, 2014.
11. Pan-American Advanced Study Institute on Spatio-Temporal Statistics, Buzios, Brazil, 2014.
12. Statistics and the Environment Conference, NCSU, Raleigh, NC, 2012.
13. WNAR/IMS and Graybill Conference, Fort Collins, CO, 2012.
14. Conference of the National Water Quality Monitoring Council, Portland, OR, 2012.
15. Joint Statistical Meetings, Miami, FL, 2011.
16. Joint Statistical Meetings, Vancouver, Canada, 2010.
17. Bayes on the Beach, Stradbroke Island, Australia, 2009.

18. Section on Statistics and the Environment, Boulder, CO, 2008.
19. SAMSI Program on Environmental Sensor Networks, Durham, NC, 2008.
20. WNAR/IMS 2007, Irvine, CA, 2007.
21. Joint Statistical Meetings, Seattle, WA, 2006.
22. Bayesian Methods in Wildlife Population Monitoring, Fort Collins, CO, 2006
23. Conference on Uncertainty in Ecological Analysis, Ohio State University, 2006.
24. Joint Statistical Meetings, Minneapolis, MN, 2005.
25. International Conference on Bayesian Statistics and its Applications, Varanasi, India, 2005.
26. Science To Achieve Results (STAR) Environmental Research Seminar, EPA, Denver, CO, 2004.
27. Statistics in Ecology, NSF sponsored workshop, Jackson Hole, WY, 2003.
28. Case Studies in Bayesian Statistics, Workshop 7, Pittsburgh, PA, 2003.
29. International Biometrics Conference, Freiburg, Germany, 2002.
30. WNAR/IMS, Los Angeles, CA, 2002.
31. Joint Statistical Meetings, Atlanta, GA, 2001.
32. Graybill Conference, Fort Collins, CO, 2001,
33. Interface, Chicago, IL, 1999.
34. National Center for Atmospheric Research, Boulder, CO, 1999.
35. Women's Studies Science Initiative, University of North Carolina, Greensboro, NC.
36. Joint Statistical Meetings, Anaheim, CA 1997.
37. U.S. Forest Service, Rocky Mountain Research Station, Fort Collins, CO,1997.
38. WNAR/IMS/IBS, Pullman, ID, 1996
39. Joint Statistical Meetings, Chicago, IL, 1996
40. American Statistical Association, Colorado-Wyoming Chapter, Boulder, CO, 1995.

Departmental Seminars

1. University of California Santa Cruz, Dept of Statistics, 2019
2. Carleton College, Dept of Mathematics & Statistics, 2018
3. University of Lisbon, Portugal, Department of Statistics and Operations Research, 2017
4. Virginia Tech, Department of Statistics, 2017.
5. Colorado School of Mines, Dept of Applied Mathematics & Statistics, 2015.
6. University of Missouri, Department of Statistics, 2013.
7. Brigham Young University, Department of Statistics, 2013.
8. Arizona State University, School of Mathematics and Statistical Science, 2012.
9. Commonwealth Scientific and Industrial Research Organisation (CSIRO), Canberra, Australia, 2010.
10. CSIRO, Brisbane, Australia, 2009.
11. North Carolina State University, Department of Statistics, 2008.
12. Colorado State University, Natural Resources in Ecology Lab, 2008.
13. University of Wyoming, Department of Statistics, 2007.
14. University of Wisconsin, Department of Statistics, 2007.
15. The Ohio State University, Department of Statistics, 2006.
16. Oregon State University, Department of Statistics, 2005.

17. Colorado State University, Department of Mathematics, 2005.
18. University of Otago, Department of Mathematics and Statistics, Dunedin, New Zealand, 2003.
19. Duke University, Institute of Statistics and Decision Sciences, 1999.
20. University of North Carolina, Greensboro, Mathematics Department, 1999.
21. Colorado State University, Dept. of Fisheries and Wildlife Biology, 1997.
22. Colorado State University, Department of Computer Science, 1996.
23. University of Wyoming, Department of Statistics, 1996.
24. Colorado State University, Department of Chemical and Bioresource Engineering, 1996.
25. Colorado State University, Department of Statistics, Fort Collins, CO, 1996.
26. Colorado State University, Department of Statistics, Fort Collins, CO, 1994.
27. University of Colorado, Department of Preventive Medicine and Biometrics, Denver, CO, 1994.
28. Carnegie Mellon University, Department of Statistics, 1994.
29. Duke University, Institute of Statistics and Decision Sciences, 1994.

Contributed talks and other conference contributions

1. International Statistical Ecology Conference, Montpellier, France, 2014
2. Statistical Modelling and Inference Conference, Brisbane, Australia, 2010
3. International Symp. on Veterinary Epidemiology and Economics, Durban, South Africa, 2009
4. Conference on Statistical Analysis for Aquatic Resources, Corvallis, OR, 2005
5. Joint Statistical Meetings, Minneapolis, MN, 2005
6. Conference on Statistical Analysis for Aquatic Resources, Corvallis, Oregon, 2003
7. International Workshop on Bayesian Analysis, University of California at Santa Cruz, 2003
8. Joint Statistical Meetings, Indianapolis 2000
9. Joint Statistical Meetings, Atlanta, 2001
10. Case Studies in Bayesian Statistics Workshop 4, Pittsburgh 1997
11. Joint Statistical Meetings, Orlando 1995
12. International Workshop on Model Uncertainty and Model Robustness, Bath, England, 1995
13. North American Meeting of the International Society for Bayesian Analysis, Toronto, 1994
14. First World Conference of the International Society for Bayesian Analysis, San Francisco, 1993

Teaching

Courses Taught at Colorado State University

New courses or major course revisions noted with *

1. ST192 First Year Seminar in the Mathematical Sciences*
2. ST204 Statistics for Business Students
3. ST301 Introduction to Statistical Methods
4. ST304/ST340 Multiple Regression Analysis
5. ST309 Statistics for Engineers and Scientists
6. ST350 Experimental Design
7. STAT400 Statistical Computing*
8. ST420 Probability and Mathematical Statistics I
9. ST472 Statistical Consulting*

10. ST486 Practicum (Consulting Techniques)
11. ST511 Design and Data Analysis for Researchers I
12. ST512 Design and Data Analysis for Researchers II
13. ST540 Data Analysis and Regression
14. ST586 Practicum in Consulting Techniques*
15. ST600 Statistical Computing
16. ST640 Design and Linear Models I
17. ST675D Computer Intensive Statistics*
18. ST675K Bayesian Statistics*
19. ST740 Models and Methodology for Spatially-Explicit Data*
20. ST796 Advanced MCMC methods*
21. STAA567 Computational and Simulation Methods
22. STAA575 Applied Bayesian Statistics*
23. STAA578 Machine Learning*
24. STAR534 Machine Learning*

Class types: STAT and ST are statistics courses (undergraduate, MS, or PhD). STAA is for the Masters of Applied Statistics Program. STAR is the applied statistics program for non-statistics graduate students.

Post-doctoral and Research Associate Supervision

1. Linde Bishak, Researcher, January 2021 – present.
2. Winston Hilton, Research Associate II, November 2020 – present. Researcher, June 2020-Nov 2020.
3. Tess Hamzeh, Research Associate II, October 2020 – present. Researcher, June 2020-Nov 2020.
4. Clay Bliss, Research Associate II, May 2020 – present
5. Marian Talbert, Research Associate III, October 2016 – January 2021
6. Matthew Vuolo, Research Associate II, October 2018 – March 2020
7. Matt Branan, Research Associate II, May 2015 – September 2016
8. Linde Bishak, Research Associate II, November 2014 – April 2016.
9. Andrew Merton, Research Associate III, 2009–2011.
10. Andrew Merton, Post-doc, May 2007–May 2009, Co-supervised with Colleen Webb.
11. Man Sik Park, Post-doc, 2006.

Graduate Student Supervision

Committee member: over 120 MS and PhD committees

Graduated Advisees

Chair of Ph.D. committee

1. Joshua Hewitt, 2019, *Statistical Modeling and Computing for Climate Data*, Now Post-doctoral Researcher, Duke University
2. Zachary D. Weller, 2017, *Nonparametric tests of spatial isotropy and a calbration-capture-recapture model*. Now Assistant Professor, Colorado State University.
3. Lulu Wang, 2016, *Some topics in Model-based Clustering*, (W. Zhou, co-advisor). Now Biostatistician at Gilead Sciences.
4. Libo Sun, 2015, *Parameter Inference and Model Selection for Differential Equation Models* (C. Lee, co-adviser). Now Biostatistician at Johnson & Johnson.

5. Erin Schliep, 2013, *Spatial Probit Models for Multivariate Ordinal Data: Computational Efficiency and Parameter Identifiability.* Now University of Missouri, Assistant Professor.

6. Amber Hackstadt, 2011, *Bayesian Shape-Restricted Regression Splines* (M. Meyer, co-adviser). Now Assistant Professor, Dept of Biostatistics, Vanderbilt University

7. Alisa Wade Wilcox, 2009, *Anthropogenic Land Use Influences on Adjacent Ecological Systems: Implications for Conservation Planning* (co-advisor, Department of Geosciences). Montana State University, Faculty Affiliate, Dept of Geosciences

8. Megan Dailey Higgs, 2007, *Clipped Latent-Variable Spatial Models for Ordered Categorical Data.* Now Montana State University, Associate Professor and Neptune, Statistical Consultant.

9. Andrew Merton, 2006, *Geostatistical Models: Model Selection and Parameter Estimation under Infill and Expanding Domain Asymptotics*, (R. Davis, co-advisor). Now Statistician, Spirae (an energy strategy company).

10. Devin Johnson, 2003, *Bayesian Analysis of State-Space Models for Discrete Compositions.* Now at the National Marine Mammal Laboratory, Alaska Fisheries Science Center, NOAA.

11. Sandra Thompson, 2000, *Bayesian Model Averaging and Spatial Prediction* (R. Davis, co-advisor). Now at Pacific Northwest National Laboratory, Richland, Washington.

12. Molly Leecaster, 1999, *The Autologistic Model with Covariates for Sample Data and Robust Sampling Designs Using Predicted Probability of Presence* (D. Bowden, co-advisor). Now Research Associate Professor, University of Utah, School of Medicine.

Chair of M.S. committee

1. Clint Leach, 2018 *Linking mosquito surveillance to dengue risk through Bayesian mechanistic modeling*

2. Lulu Wang, 2012 (exam option)

3. Michael Buhnerkempe, 2012. *Using Community Detection on Networks to Identify Migratory Bird Flyways in North America*

4. Lenae Anderson, 2012 (exam option)

5. Benjamin J. Bird, 2010. *A Handbook for Computational Statistics Including a New Application of Reversible Jump Markov Chain Monte Carlo for Gene Expression Clustering* (co-advised with Geof Givens)

6. Erin Schliep, 2009. *Spatial Hierarchical Modeling in Comparing Extreme Precipitation Generated by Regional Climate Models* (Co-advisor with Dan Cooley).

7. Eugene Davis, 2009. *Using Data Windowing to Reduce the False Positive Rate in Model Selection for Polymerase Chain Reaction Amplification Curves.*

8. Megan Baburek, 2009. *Bayesian Model Averaging in Economics*

9. Nathanial Burch, 2009. *On Optimal Sampling Designs to Estimate Unknown Parameters in Partial Differential Equations via Markov Chain Monte Carlo*

10. Alexander Chen, 2009 (exam option M.S.)

11. Brett McClintock, 2008. *Bayesian Analysis of Abundance for Binomial Sighting Data with Unknown Number of Marked Individuals.*

12. Laura Beri, 2008. *Detection Function Analysis for a Bowhead Whale Population*, (co-advisor with G. Givens).

13. Doug Gorman, 2008. *A Comparison of Bayesian Models for Spatially Correlated Binary Lattice Data.*
14. Stephanie Fitchett, 2007. *An Investigation of Intensity of Sampling Locations in Spatial Modeling of Stream Chemistry*, (N.S. Urquhart, co-advisor)
15. Maggie Stanislawski, 2007, *Model Choice for Agricultural Data: A Comparison of Regression-type Models to Predict Weed Counts*
16. Julia Smith, 2006, *Modeling and Predicting Median Substrate Size in Oregon and Washington Streams Utilizing Geographic Information Systems*
17. Brett Kellum, 2003, *Analysis and Modeling of Acid Neutralizing Capacity in the Mid-Atlantic Highlands Area*
18. Andrew Leach, 2003, *A Comparison of Models for Predicting Corn Yield*
19. Melea Brown, 2002, *A Regression Model for Mercury Levels in Maine and a Comparison of the Effect of Outliers on Several Variogram Estimators*
20. Devin Johnson, 2000, *Empirical Transform Estimation of Growth Curve Parameters*
21. Greg Young, 2000, *Application of the Autologistic Model with Covariates to Estimate an Icing Field*
22. Kristina Varga, 1997, *Predicting Sandbar Size for the Colorado River*

Undergraduate Advising Undergraduate advisor for statistics majors, mathematics majors (statistics concentration), and statistics minors. 1998-2012. Advisor to 20-55 students per year.

Professional Service

Editorial Boards

Founding Editor of *Advances in Statistical Climatology, Meteorology and Oceanography (ASCMO)*

Executive Editor of *Advances in Statistical Climatology, Meteorology and Oceanography (ASCMO)* 2013-2017.

Chair of the *Journal of Agricultural, Biological, and Environmental Statistics (JABES)*, Editorial Management Committee, 2014-2019 (2 terms).

Associate Editor, *JABES*, 2011-2020.

Associate Editor, *Environmetrics*, 2010-2012.

Associate Editor, *Journal of the American Statistical Association*, Theory and Methods, 2008–2011.

Associate Editor, *JASA*, Applications and Case Studies, 2001–2006.

Grant Review Panels and Refereeing

National Institutes of Health

National Science Foundation

Professional offices

Node Director of the Research Network for Statistical Methods for Atmospheric & Oceanic Sciences (STATMOS), 2012–2018.

ASA Fellow Nomination Committee (2015 – 2019), Section on Statistics and the Environment

Chair (elected, 2011), American Statistical Association, Section on Statistics and the Environment (Chair Elect, 2010), (Past chair, 2012)

Representative At-Large (elected), International Biometric Society, Western North American Region (WNAR), 2006-2008

Lindley Prize Committee (for innovative research in Bayesian statistics), International Society for Bayesian Analysis, 2007-8

Officer Nomination Committee, International Society for Bayesian Analysis, 2006

Publications chair (elected), American Statistical Association, Section on Statistics and the Environment 2005 and 2006

Committee on Publications, American Statistical Association, 2014–2019.

Chair, Committee on diversity in ASA editorial boards, subcommittee of ASA Committee on Publications, 2018

Conference Organization

Conference Organizer

Spatial Statistics Workshop 2013, Colorado State University, Co-organizer

Joint Statistical Meetings Program Committee 2006, Institute of Mathematical Statistics, Contributed Session Organizer

Computational Environmetrics Workshop, American Statistical Association, Section on Statistics and the Environment, Chicago, IL, October 2004

Graybill Conference: Spatial Statistics – Agricultural, Ecological, and Environmental Applications, Fort Collins, CO, June 2004

Session organizer

Statistical Methods for Monitoring our Aquatic Resources, Joint Statistical Meetings, invited session for the Section on Statistics and the Environment, August 2005

Bayesian Solutions to Challenging Problems in Ecology, Joint Statistical Meetings, invited session for the Bayesian Statistics Section, August 2004

Other Activities

Member, Scientific Advisory Committee, Human Rights Data Analysis Group (non-profit organization that performs statistical analysis of human rights data). 2013 – 2020.

Member of the Independent Scientific Advisory Committee (ISAC) for the Platte River Recovery Implementation Program. 2014–2019.

Co-chair of the Independent Scientific Advisory Committee (ISAC) for the Platte River Recovery Implementation Program. 2020– present.

Member of Gunnison County, Colorado, Investigative Science COVID-19 Response Team. Led starting August 2020. April 2020 - April 2021.

Committees

Department Committees at CSU

1. Executive Committee, 2003–2006, 2010–2012
2. Promotion and Tenure Committee, 2011-2014
3. Undergraduate Committee:

   Chair, 1998–2009, 2010-2013

   Member, 1997–1998
4. Undergraduate Advisor: 1998–2009, 2010-2012

5. Search Committees (Statistics Department unless otherwise noted)

   2018–2019, Assistant Professor search, Computer Science

   2017–2018 Assistant Professor search, Biology

   2018, Consulting search committee (2 positions)

   2017–2018, Assistant Professor search (committee chair)

   2016-2017, Assistant Professor search

   2012-2013, Assistant Professor search

   2011–2012, Assistant Professor search (committee chair)

   2010–2011, Associate/Full Professor search (committee chair)

   2010, Department Chairman search

   2005–2006, Distance Program Coordinator search committee (committee chair)

   2004-2005 Assistant professor search, Dept. of Computer Science

   2004–2005, Assistant Professor position search

   2001–2002, Assistant Professor position search (2 positions)

   1999–2000, Assistant Professor position search

   1999–2000, Associate/Full Professor position search

   1998–1999, Assistant Professor position search

   1996–1997, Department Chairman search

6. Graduate Admissions Committee, 1996–1997 (member), 2014–2017 (chair)
7. Graduate Committee 2014–2017
8. Master's of Applied Statistics Committee, 2017–2019, 2020–2021
9. Awards and Scholarship Committee 2020–2021
10. Seminar Organizer, 1998, 2014, 2015, 2016, 2020-2021 (chair)
11. Internship/Job Search Coordinator. Provided assistance to Statistics undergraduate and graduate and students seeking graduate school, internships, and permanent positions including annual presentations.

College of Natural Sciences (CNS) Committees at CSU

1. Women in Natural Science (mentor women in our college)

   Co-director 2010-2014, 2016 – 2021

   Grants and Awards Committee, 2007–2009

2. CNS Search committee for Interim Associate Dean for Undergraduate Studies, Feb. 2009
3. CNS committee on PRISM (CSU's Plan for Researching Improvement and Supporting Mission), 2006–2009
4. Natural Sciences Learning Task Force, 2004–2005
5. Committee for Determining Future Directions in Undergraduate Education, Chair of sub-committee on interdisciplinary programs, 2001–2002
6. Department of Mathematics Undergraduate Committee, member 2000–2012
7. CNS Undergraduate Committee, 2002-2014

University and Other Committees at CSU

1. National Science Foundation IGERT, Program in Interdisciplinary Mathematics, Ecology and Statistics (PRIMES)

   PRIMES Council, 2003–2009

   Post-doc Search Committee: 2003-4

   Seminar Organizing Committee, 2003–2005

   Minority Participation Committee, 2003–2005

2. Search committee for the National Acid Deposition Program (NADP) through CSU's Natural Resources Ecology Laboratory (NREL), Fall, 1996

Departmental Reviews

1. Colorado State University Internal Review Committee for the Department of Economics, 2005
2. University of Utah External Review Committee for the Masters of Statistics programs, Fall 2008
3. Colorado State University Internal Review Committee for the Department of Fish, Wildlife and Conservation Biology, Spring 2014