

Guoyi Zhang Mathematics and Statistics 07/31/2023

Educational History

Ph.D. Mathematics, August 2008, Arizona State University, Tempe, AZ.

Major: Statistics.

Dissertation Title: Smoothing Splines Using Compactly Supported Positive Definite Radial Basis Function.

Advisor: Dr. Randall Eubank.

Master of Management, March 1998, Zhejiang University, Hangzhou, China.

Major: Techno-economics.

Thesis Title: Electric Power Exploitation Investment and Conservation Energy Investment with Durable Development in China.

Advisor: Dr. Ying Shi.

Bachelor of Engineering, June 1995, Zhejiang University, Hangzhou, China.

Major: Industrial Electrification & Automation.

Employment History Part I

Principle Positions since the Bachelor's Degree

Associate Professor, August 2015 - Present, Department of Mathematics and Statistics, University of New Mexico.

Assistant Professor, August 2009 - May 2015, Department of Mathematics and Statistics, University of New Mexico.

Quantitative Data Analyst, June 2000 - April 2002, Bohua Asset Management Co. Ltd, Beijing, China.

Team Manager, April 1998 - May 2000, Shanghai Xietong Electronics Co. Ltd, Shanghai, China.

Employment History Part II

Concurrent Temporary or Visiting Appointments, Consultantships

Senior Statistician (fellowship), August 2022 - August 2023, National Center for Health Statistics, Centers for Disease Control and Prevention(CDC).

Visiting Assistant Professor, August 2008 - May 2009, Department of Mathematics and Statistics, University of New Mexico.

Statistical Consultant, August 2005 - August 2006, Department of Mathematics and Statistics, Arizona State University.

Teaching Assistant, August 2004 - May 2005, August 2006 - May 2008, Department of Mathematics and Statistics, Arizona State University.

Professional Recognition

ASA&NCHS Fellow, 2022, American Statistical Association (ASA) and National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC).

Outstanding Faculty, 2022, Department of Mathematics and Statistics, University of New Mexico.

“Summer at Census” program award, Summer 2017, United States Census Bureau.

First class GuangHua Scholarship, Zhejiang University 1997.

Excellent Thesis Award, Zhejiang University 1995.

Short Narrative Description of Research, Teaching and Service Interests

My primary research interests revolve around nonparametric function estimation and computational statistics. Much of my work involves developing new statistical theory, methods, and algorithms within these domains. With an educational background in engineering, management, and statistics, my research interests extend to machine learning, survey sampling, mixed models, financial engineering, and applications in healthcare. Among my 37 research articles, 30 have been published in high-quality refereed statistical journals or in journals from other applied areas. Seven of these papers are single-authored, and I have served as the first author on 23 of them. I am currently engaged in the project titled “Small Area Estimation Using Machine Learning Methods” in collaboration with the National Center for Health Statistics. Simultaneously, I am in the process of preparing and submitting several research funding projects for review. Throughout my years of research, I have encountered and overcome various challenges while exploring new questions and ideas. These experiences have fostered my appreciation for the beauty of statistics, and I thoroughly enjoy engaging in research.

As an instructor, my aim is to equip my students with the knowledge and confidence to excel. My main objectives are for students to grasp the fundamental concepts of the course, to develop their problem-solving and analytical skills, and to establish a strong foundation for their future work. My teaching philosophy rests on meticulous preparation, effective classroom instruction, and maintaining an open-door policy. For each class, I invest significant effort into organizing lecture notes, incorporating real-life examples, and presenting complex material in a clear and accessible manner. From Fall 2008 to Spring 2022, I have taught 11 diverse courses ranging from undergraduate to Ph.D. levels. Additionally, I have instructed 12 individual reading and research courses, as well as dissertation courses for graduate students. I frequently organize statistics colloquia to foster intellectual discussions within the field.

Among the 11 courses, I have developed entirely new curricula for two of them: Statistical Computing (Stat 590) and Nonparametric Curve Estimation (Stat 586). When teaching these courses, I incorporate my research findings, and I take great pride in having supervised 11 students whose research papers have been published in reputable statistical journals. Moreover, I have provided guidance to five Ph.D. students for their dissertations, supervised one master’s student’s thesis, and served as a mentor and committee member for numerous graduate and undergraduate students.

I actively contribute to the statistics profession and UNM through my extensive service. I serve as an associate editor for two esteemed statistical journals, namely the Journal of Statistical Computation and Simulation, and the Journal of Applied Statistics. Additionally, I have actively participated in organizing conferences and have reviewed numerous papers for journals such as Machine Learning, Technometrics, Journal of Nonparametric Statistics, Statistics and Probability Letters, Journal of Statistical Computation and Simulation, Communications in Statistics-Theory and Methods, Communications in Statistics-Simulation and Computation, Journal of Applied Statistics, British Journal of Mathematics and Computer Science, Journal of Testing and Evaluation, and International Journal of Biostatistics, among others. Furthermore, I hold editorial positions in various publications including Austin Statistics, Austin Mathematics, Journal of Mathematics and Statistics, and Journal of Probability and Statistics.

Within the university, I have taken on significant roles such as serving as the director of the UNM Statistics Consulting Clinic and participating in the faculty senate library committee. At the college level, I have contributed to the Retention Committee, and at the department level, I have been involved in various committees including the Colloquium Committee, Scheduling Committee, Hiring Committee, and the Stat Qualifying and Comprehensive Examination Committee.

Scholarly Achievements:

Articles in Refereed Journals:

1. Nikolay Miller and Guoyi Zhang, Additive Multi-task Learning Models and Task Diagnostics, *Communications in Statistics - Simulation and Computation*, accepted, Apr 2023.
2. Sarah Alver and Guoyi Zhang, Multiple Comparisons of Treatment vs Control Under Unequal Variances Using Parametric Bootstrap, *Journal of Applied Statistics*, accepted, 2023.
3. Sarah Alver and Guoyi Zhang, Simultaneous Confidence Intervals for Pairwise Multiple Comparisons in Multi-Way Unbalanced Design with Unequal Variances, *Communications in Statistics - Simulation and Computation*, Published online: 3 Aug 2022.
4. Guoyi Zhang and Yan Lu, Comparison of Difference Based Variance Estimators for Partially Linear Models, *Communication in Statistics-Theory and Methods*, Published online: 29 Apr 2022
5. Guoyi Zhang, Ronald Christensen, and John Pesko, Parametric Bootstrap and Objective Bayesian Testing for Heteroscedastic One-way ANOVA, *Statistics & Probability Letters*, Volume 174, 2021.
6. Yan Lu, Ye Fu, and Guoyi Zhang, Nonparametric Regression Estimators in Dual Frame Surveys, *Communications in Statistics - Simulation and Computation*, Volume 50, No. 3, 854-864, 2021.
7. Nikolay Miller, Yiming Yang, Bruce Sun, and Guoyi Zhang, Identification of Technical Analysis Patterns with Smoothing Splines for Bitcoin Prices, *Journal of Applied Statistics*, Volume 46, No. 12, 2289-2297, 2019.
8. Dominic Lewinski, Yiming Yang, Zhongxue Chen, and Guoyi Zhang, Reversion and Location Trends in the Bitcoin Market, *International Journal of Data Science*, Volume 4, No. 4, 275-287, 2019.
9. Guoyi Zhang, Yang Cheng, and Yan Lu, Generalized Variance Functions for Longitudinal Survey Data, *Statistical Theory and Related Fields*, Volume 3, No. 2, 50-157, 2019.
10. Guoyi Zhang, Bose Falk, and Zhongxue Chen, Multiple Comparisons of Several Log-normal Means under Heteroscedasticity, *International Journal of Mathematics and Statistics*, Volume 20, No. 3, 1-10, 2019.
11. Rong Liu, Wolfgang K. Hardle, and Guoyi Zhang, Statistical inference for generalized additive partially linear models, *Journal of Multivariate Analysis*, Volume 162, 1-15, 2017.
12. Guoyi Zhang and Rong Liu, Bias-corrected Estimators for Scalar Skew Normal, *Communications in Statistics - Simulation and Computation*, Volume 46, No. 2, 831-839, 2017.

13. Wei Zheng, Yong Jin, and Guoyi Zhang, Recursive estimation of time-average variance constants through prewhitening, *Statistics & Probability Letters*, Volume 114, 30-37, 2016.
14. Guoyi Zhang, Gongzhen Mao, and Yang Cheng, Adjusted Confidence Band for Complex Survey Data, *Communications in Statistics-Simulation and Computation*, Volume 45, No. 6, 1896-1904, 2016.
15. Zhongxue Chen and Guoyi Zhang, Comparing survival curves based on medians, *BMC Medical Research Methodology*, Volume 16, Article 33, 2016.
16. Zhongxue Chen, Guoyi Zhang, and Jing Li, Goodness-of-fit test for meta-analysis, *Scientific Reports*, 5: 16983, 2015.
17. Guoyi Zhang and Zhongxue Chen, Inferences on Correlation Coefficients of Bivariate Log-normal Distributions, *Journal of Applied Statistics*, Volume 42, No. 3, 603-613, 2015.
18. Guoyi Zhang, Simultaneous Confidence Intervals for Pairwise Multiple Comparisons in a Two-Way Unbalanced Design with Unequal Variances, *Journal of Statistical Computation and Simulation*, Volume 85, No. 13, 2727-2735, 2015.
19. Guoyi Zhang, Fletcher Christensen, and Wei Zheng, Nonparametric Regression Estimators in Complex Surveys, *Journal of Statistical Computation and Simulation*, Volume 85, No. 5, 1026-1034, 2015.
20. Guoyi Zhang, A Parametric Bootstrap Approach for One-way ANOVA under Unequal Variances with Unbalanced data, *Communications in Statistics-Simulation and Computation*, Volume 44, No. 4, 827-832, 2015.
21. Guoyi Zhang, Simultaneous Confidence Intervals for Several Inverse Gaussian Populations, *Statistics and Probability Letters*, Volume 92, 125-131, 2014.
22. Guoyi Zhang, Improved R and s Control Charts for Monitoring the Process Variance, *Journal of Applied Statistics*, Volume 41, No. 6, 1260-1273, 2014.
23. Guoyi Zhang and Yan Lu, Bias Corrected Random Forests in Regression, *Journal of Applied Statistics*, Volume 39, No. 1, 151-160, 2012.
24. Guoyi Zhang, Smoothing Splines Using Compactly Supported Positive Definite Radial Basis Functions, *Computational Statistics*, Volume 27, No. 3, 573-584, 2012.
25. Sheng-Yang Wang and Guoyi Zhang, Price Pattern Recognition Utilizing Local Polynomial Regression, *Journal of Trading*, Volume 7, No. 2, 37-43, 2012.
26. Guoyi Zhang, Optimal Geometric Mean Returns of Stocks and Their Options, *International Journal of Stochastic Analysis*, Article ID 498050, 2012.
27. Guoyi Zhang, Brandon Beck, Wentao Luo, Fan Wu, Stephen F. Kingsmore, and Donghai Dai, Development of a phylogenetic tree model to investigate the role of genetic mutations in endometrial tumors, *Oncology Report*, Volume 25, No. 5, 1447-1454, 2011.

28. Yan Lu and Guoyi Zhang, The Equivalence Between Likelihood Ratio Test and F Test for The One Way Random Effects Model, *Journal of Statistical Computation and Simulation*, Volume 80, No. 4, 443-450, 2010.
29. Guoyi Zhang and Yan Lu, Adjusted Confidence Bands in Nonparametric Regression, *Communications in Statistics: Simulation and Computation*, Volume 37, No. 1, 106-113, 2008.
30. Xiaoli Liu, Lanjuan Li, Guoyi Zhang, Guoping Sheng, and Wei Xu, An Approach to Characterize Serum Low Molecular Weight Proteins/Peptides in Liver Injury with SELDI-TOF MS and Factor Analysis, *Clinical Biochemistry*, Volume 40, No. 16, 1266-1271, 2007.

Articles Appearing in Chapters in Edited Volumes

Bias-Corrected Estimators of Scalar Skew Normal, ICSA Book Series in Statistics: New Developments in Statistical Modeling, Inference and Application, pages 203-214, Hardcover, New York, Springer Nature, 2016.

Works in progress:

31. Yan Lu, Lang Zhou, Guoyi Zhang, and Ronald Christensen, Neyman Smooth Type Goodness-of-Fit Tests in Complex Surveys, *Journal of Survey Statistics and Methodology*, under review.
32. Guoyi Zhang and Bruce Swan, Variance Estimators for Stratified Random Sample, *Communication in Statistics: Simulation and Computation*, under review.
33. Guoyi Zhang, Combined Estimator using Random Forests and Support Vector Machine in Regression, *Machine Learning*, under review.
34. Guoyi Zhang, Yang Cheng, and Mohammed Quazi, Adjusted Design Effect Model for Longitudinal Survey Data, *Statistical Theory and Related Fields*, under review.
35. Guoyi Zhang and Yulei He, A general procedure for evaluating models and Ensemble Support Vector Regression, *Journal of Statistical Computation and Simulation*, under review.
36. Guoyi Zhang and John Pleis, Variable Selection Procedure in Regression for Large Data, under NCHS review. (Prior to its external publication, the manuscript must undergo internal clearance within NCHS.)
37. Guoyi Zhang and John Pleis, A semiparametric model for small area estimation using support vector machine, under NCHS review.
38. Guoyi Zhang and John Pleis, A semiparametric model for unit level small area estimation using support vector machine, in preparation.
39. Guoyi Zhang and John Pleis, Bias-corrected estimators using random forest in regression, in preparation.
40. Guoyi Zhang, Nonparametric Regression for Generalized Linear Models Using Positive Definite Radial Basis Functions, in preparation.

41. Guoyi Zhang, Technical Analysis with Computational Algorithms, Statistical Inference, and Empirical Implementation, in preparation.
42. Guoyi Zhang, Random Forests and The Classification and Regression Tree (CART) Approaches to Stock Selection, in preparation.

Other Writings:

43. Guoyi Zhang and Zhongxue Chen, Inferences on Correlation Coefficients of Bivariate Log-normal Distributions, *ICSA/KISS symposium proceeding, 2015*.
44. Guoyi Zhang and Rong Liu, Bias-corrected Estimators of Scalar Skew Normal, *ASA Proceedings, 2014*.
45. Guoyi Zhang, A Parametric Bootstrap Approach for Two-way ANOVA under Unequal Variances with Unbalanced Data, *ASA Proceedings, 2013*.

Invited or Refereed Abstracts and/or Presentations at Professional Meetings:

Invited Talks: 8

1. “Small area estimation using support vector machine”, the seventh International Conference on Establishment Statistics (ICES VII), June 17-20, 2024, in Glasgow, Scotland.
2. “Small area estimation using support vector machine”, DC-AAPOR/WSS 2023 review preview conference, July 28, 2023, National Academy of Sciences, 2101 Constitution Ave NW, Washington, DC.
3. “Small area estimation using support vector machine”, SAE-2023 conference, Lima, Peru in June 2023, now postponed because of political disturbances in Peru.
4. “Small area estimation using support vector machine”, 2023 ICSA Applied Statistics Symposium, June 11-14, 2023, University of Michigan, Ann Arbor, MI.
5. “A general procedure for evaluating models and Ensemble Support Vector Regression”, Current Innovations in Probability-based Household Internet Panel Research (CIPHER) Conference, March 9-10, 2023, Washington, DC.
6. “Comparison of Difference Based Variance Estimators for Partially Linear Models”, 2020 ICSA Applied Statistics Symposium, December 13-16, 2020, Virtual.
7. “Generalized variance functions for longitudinal data”, SAE2018 conference: Small Area Estimation and Other Topics of Current Interest in Surveys, Official Statistics, and General Statistics: A Celebration of Professor Danny Pfeiffermann’s 75th Birthday, June 16-18, 2018, Shanghai, China.
8. “Smoothing Splines Using Compactly Supported, Positive Definite, Radial Basis Functions”, session on “Spatial Statistics and the Environment: Theory and Applications”, International Conference on Advances in Interdisciplinary Statistics and Combinatorics, October 10-12, Greensboro, NC, 2014.

Contributed Talks: 13

9. Contributed talk, “Small area estimation using support vector machine”, Joint Statistical Meeting, Toronto, Canada, August 2023.

10. Contributed talk, “Identification of Technical Analysis Patterns with Smoothing Splines for Bitcoin Prices”, New Mexico Academy of Science 2019 Research Symposium, Albuquerque, NM, November 2019.
11. Contributed talk, “Identification of Technical Analysis Patterns with Smoothing Splines for Bitcoin Prices”, session on “Business and Economic Statistics Section”, Joint Statistical Meeting, Denver, CO, July 2019.
12. Contributed talk, “Identification of Technical Analysis Patterns with Smoothing Splines for Bitcoin Prices”, American Statistical Association ABQ chapter, Sante Fe, NM, April 2019.
13. Contributed talk, “Generalized variance functions for longitudinal data”, American Statistical Association ABQ chapter, Sante Fe, NM, April 2018.
14. Contributed talk, “Variance estimators for partially linear models”, American Statistical Association Albuquerque Chapter, Santa Fe, NM, April 2017.
15. Contributed talk, “Comparison of Difference Based Variance Estimators for Partially Linear Models”, session on “Nonparametric and Semiparametric Methods”, Joint Statistical Meeting, Chicago, IL, August 2016.
16. Contributed talk, “Bias-corrected Estimators of Scalar Skew Normal”, session on “Statistical Computing”, Joint Statistical Meeting, Boston, MA, August 2014.
17. Contributed talk, “Inferences on Correlation Coefficients of Bivariate Log-normal Distributions”, session on “Hypothesis Testing”, 2014 Joint Applied Statistics Symposium of International Chinese Statistical Association & Korean International Statistical Society, Portland, Oregon, June 2014.
18. Contributed talk, “A Parametric Bootstrap Approach for ANOVA under Unequal Variances with Unbalanced data”, American Statistical Association Albuquerque Chapter, Santa Fe, NM, September 2013.
19. Contributed talk, “A Parametric Bootstrap Approach for ANOVA under Unequal Variances with Unbalanced data”, session on “Statistical Computing”, Joint Statistical Meeting, Montréal, Québec, Canada, August 2013.
20. Contributed talk, “Nonparametric Regression Estimators in Complex Surveys”, IMS-China International Conference on Statistics and Probability, Chengdu, China, June 2013.
21. Contributed talk, “Development of a phylogenetic tree model to investigate the role of individual mutations in a single patient tumor”, The Annual Meeting of American Association for Cancer Research, Washington, DC, April 2010.

Other Presentations: 17

22. Colloquium, “Small area estimation using support vector machine”, Department of Mathematics and Statistics, UNM, September 2023.

23. Invited talk, "Small area estimation using support vector machine ", National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC), April 2023.
24. Colloquium, "Generalized variance functions for longitudinal data", Department of Mathematics and Statistics, UNM, September 2021.
25. Invited talk, "Neyman Smooth-Type Goodness of Fit Tests in Complex Surveys", U.S. Census of Bureau, June 2017.
26. Invited talk, "Bias-corrected Estimators for Scalar Skew Normal", Department of Statistics, Indiana University-Bloomington, April 2014.
27. Invited talk, "Bias-corrected Estimators for Scalar Skew Normal", Indiana University-Purdue University, April 2014.
28. Invited talk, "A Parametric Bootstrap Approach for ANOVA under Unequal Variances with Unbalanced data", Department of Epidemiology and Biostatistics, School of Public Health, Indiana University-Bloomington, April 2014.
29. Invited talk, "Nonparametric Regression Estimators in Complex Surveys", U.S. Census of Bureau, July 2013.
30. Invited talk, "A Parametric Bootstrap Approach for ANOVA under Unequal Variances with Unbalanced data", Zhejiang University, Hangzhou China, June 2013.
31. Invited talk, "Bias-corrected Random Forests in Regression", Prediction Company LLC, Santa Fe, NM, 2012.
32. Colloquium, "Simultaneous Confidence Intervals for Several Inverse Gaussian Populations", Department of Mathematics and Statistics, UNM, October 2014.
33. Seminar talk, "Inferences on Correlation Coefficients of Bivariate Log-normal Distributions", Department of Mathematics and Statistics, UNM, March 2014.
34. Seminar talk, "Bias-corrected Estimators for Scalar Skew Normal", Department of Mathematics and Statistics, UNM, November 2013.
35. Seminar talk, "A Parametric Bootstrap Approach for ANOVA under Unequal Variances with Unbalanced data", Department of Mathematics and Statistics, UNM, April 2013.
36. Seminar talk, "Nonparametric Regression Estimators in Complex Surveys", Department of Mathematics and Statistics, UNM, November 2012.
37. Seminar talk, "Bias-corrected Random Forests in Regression", Department of Individual, Family, & Community Education, UNM, 2012.
38. Seminar talk, "Bias-corrected Random Forests in Regression", Division of Epidemiology and Biostatistics, UNM, 2012.

Research Funding:

Small area estimation using machine learning methods

PI: Guoyi Zhang (UNM)

National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC)
\$174,372

08/08/2023-08/07/2024

Small area estimation using support vector machine and multiple task learning

Guoyi Zhang (sole investigator)

National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC)
\$180,565, August 2022 - August 2023

Department travel award, \$500 to \$1000/year, 2012-2019.

“Summer at Census” program award, \$5000, Summer 2017, United States Census Bureau.

Pending Research Funding:

Regression Imputation using Machine Learning Methods

PI: Guoyi Zhang (UNM)

United States Census Bureau

09/01/2024-08/30/2025, \$169,813

Pending

Regression Imputation using Machine Learning Methods

PI: Guoyi Zhang (UNM)

U. S. Bureau of Labor Statistics

09/01/2024-08/30/2025, \$169,813

Pending

An Investigation of a Root Cause of School Violence: Low empathy or compassion

PI: Julia Keller, Ph.D. (MYI) Co-PI: David Witherington, Ph.D. (UNM)

Department of Justice (DOJ) \$500,000

Role: Senior Statistician

01/01/2024-12/30/2028, \$105,974

Pending

Teaching

Doctoral Advisement:

Haiyang Zhu, Expected May 2025

Dissertation Title: Small Area Estimation Using Machine Learning Methods.

Nikolay Miller, August 2022

Dissertation Title: Statistical Extensions of Multi-task learning with Semi-parametric methods and Task Diagnostics.

Sarah Alver, May 2022

Co-advised with Dr. James Degnan

Dissertation title: Measurement Error Modeling Applied to Phylogenetic Inference and Parametric Bootstrap Approach to Multifactor ANOVA Models with Unequal Variances and Unbalanced Data.

John Pesko, May 2017

Co-advised with Dr. Ronald Christensen

Dissertation title: Contributions to Statistical Testing, Prediction, and Modeling.

Lang Zhou, May 2016

Co-advised with Dr. Yan Lu

Dissertation Title: Neyman Smooth-Type Goodness of Fit Tests in Complex Surveys.

Masters Advisement:

Bose Falk, December 2014

Thesis title: A Generalized Confidence Interval approach to comparing log-normal means, with application.

Undergraduate Student Mentoring:

I have advised many undergraduate students in the Department of Mathematics and Statistics, and wrote numerous recommendation letters.

Graduate Student Mentoring:

I have provided guidance to many graduate students in the math department and have written numerous recommendation letters. Additionally, I have advised students on projects that have successfully transformed into publications.

1. Mentored graduate student Lang Zhou on research and wrote a paper “A Neyman Smooth Type Goodness of Fit test with Survey data”, under review.
2. Mentored graduate student Nikolay Miller on research and wrote a paper “Additive Multi-task Learning Models and Task Diagnostics”, *Communications in Statistics - Simulation and Computation*, accepted, Apr 2023.
3. Mentored graduate student Sarah Alver on research and wrote a paper “Multiple Comparisons of Treatment vs Control Under Unequal Variances Using Parametric Bootstrap”, *Journal of Applied Statistics*, accepted, 2023.
4. Mentored graduate student Sarah Alver on research and wrote a paper “Simultaneous Confidence Intervals for Pairwise Multiple Comparisons in Multi-Way Unbalanced Design with Unequal Variances”, *Communication in Statistics - Simulation and Computation*, Published online: 3 Aug 2022.

5. Mentored graduate student John Pesko on research and wrote a paper “Parametric Bootstrap and Objective Bayesian Testing for Heteroscedastic One-way ANOVA”, *Statistics & Probability Letters*, accepted March 2021.
6. Mentored graduate students Dominic Lewinski and Yiming Yang, wrote a paper “Reversion and Location Trends in the Bitcoin Market”, *International Journal of Data Science*, Volume 4, No. 4, pages 275-287, 2019.
7. Mentored graduate students Nikolay Miller and Yiming Yang on research and wrote a paper “Identification of Technical Analysis Patterns with Smoothing Splines for Bitcoin Prices”, *Journal of Applied Statistics*, Volume 46, No. 12, pages 2289-2297, 2019.
8. Mentored graduate student Bose Falk on research and wrote a paper “Inference of Several Log-normal Distributions”, *International Journal of Mathematics and Statistics*, Volume 20, No. 3, 1-10, 2019.
9. Mentored graduate student Maozhen Gong on research and published a paper “Adjusted Confidence Band for Complex Survey Data” in *Communications in Statistics-Simulation and Computation*, Volume 45, No. 6, 1896-1904, 2016.
10. Mentored graduate student Fletcher Christensen on research and published a paper “Nonparametric Regression Estimators in Complex Surveys” in *Journal of Statistical Computation and Simulation*, Volume 85, No. 5, 1026-1034, 2015.
11. Mentored graduate student Sheng-Yang Wang on research and published a paper “Price Pattern Recognition Utilizing Local Polynomial Regression” in *Journal of Trading*, Volume 7, No. 2, 37-43, 2012.

Classroom Teaching:

2022 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 15 students.

2022 Spring, Stochastic Process with Applications, Stat 565/math 540, 8 students.

2021 Fall, Regression, Stat 440/540, 17 students.

2021 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 24 students.

2020 Fall, Regression, Stat 440/540, 30 students.

2020 Fall, Probability, Stat 461/561, Math 441, 38 students.

2020 Spring, Nonparametric curve estimation, Stat 586, 12 students.

2019 Fall, Regression, Stat 440/540, 23 students.

2019 Fall, Sampling: design and analysis, Stat 472572, 10 students.

2019 Spring, Statistical Inference, Stat 453/553, 16 students

2019 Spring, Elements of Mathematical Statistics and Probability Theory, Stat 345, 37 students.

2018 Fall, Elements of Mathematical Statistics and Probability Theory, Stat 345, 31 students.

2018 Fall, Probability, Math 441, Stat461/561, 32 students

2018 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 32 students.

2018 Spring, Statistical Computing, Stat 590, 12 students.

2017 Fall, Elements of Mathematical Statistics and Probability Theory, Stat 345, 37 students.

2017 Fall, Regression, Stat 440/540, 40 students.

2017 Spring, Introduction to Statistics, Stat 145, 26 students.

2017 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 19 students

2016 Spring and Fall, Sabbatical Leave.

2015 Fall, Probability, Math 441, Stat461/561, 35 students.

2015 Fall, Nonparametric Curve Estimation, Stat 586, 5 students.

2015 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 25 students.

2015 Spring, Statistical Inference, Stat 553, 20 students.

2014 Fall, Industrial Statistics, Stat 470/570, 15 students.

2014 Fall, Elements of Mathematical Statistics and Probability Theory, Stat 345, 37 students.

2014 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 24 students.

2014 Spring, Statistical Inference, Stat 453/553, 22 students.

2013 Fall, Elements of Mathematical Statistics and Probability Theory, Stat 345, 29 students.

2013 Fall, Probability, Stat 461/561, Math 441, 41 students.

2013 Spring, Introduction to Statistics, Stat 145, 58 students.

2013 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 15 students.

2012 Fall, Industrial Statistics, Stat 470/570, 8 students.

2012 Fall, Stochastic Process with Applications, Stat 565/Math 540, 12 students.

2012 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 21 students.

2012 Spring, Nonparametric Curve Estimation, Stat 586, 6 students.

2011 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 14 students.

2011 Spring, Stochastic Process with Applications, Stat 565/Math 540, 12 students.

2010 Fall, Industrial Statistics, Stat 470/570, 7 students.

2010 Fall, Nonparametric Curve Estimation, Stat 586, 6 students.

2010 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 12 students.

2009 Fall, Industrial Statistics, Stat 470/570, 8 students.

2009 Fall, Elements of Mathematical Statistics and Probability Theory, Stat 345, 44 students.

2009 Spring, Analysis of Variance and Experimental Design, Stat 445/545, 7 students.

2009 Spring, Introduction to Statistics, Stat 145, 55 students.

2008 Fall, Sampling Theory and Practice, Stat 472/572, 6 students.

2008 Fall, Introduction to Statistics, Stat 145, 52 students.

Courses taught as overload

1. 2022 Spring, Stat 699, Dissertation, 1 student.
2. 2021 Fall, Stat 699, Dissertation, 1 student.
3. 2021 Spring, Stat 699, Dissertation, 1 student.
4. 2021 Spring, Stat 649, Seminar of Prob and Stats, 1 student.
5. 2020 Fall, Stat 699, Dissertation, 1 student.
6. 2020 Fall, Stat 649, Seminar of Prob and Stats, 1 student.
7. 2020 Spring, Stat 650, Reading and Research, 3 students.
8. 2019 Fall, Stat 650, Reading and Research, 1 student.
9. 2019 Fall, Stat 650, Reading and Research, 1 student.
10. 2018 Fall, Stat 650, Reading and Research, 2 students.
11. 2017 Spring, Stat 650, Reading and Research, 1 student.
12. 2016 Spring, Stat 650, Reading and Research, 1 student.
13. 2015 Fall, Reading and Research, Stat 650, 1 student.
14. 2014 Spring, Master Thesis, Stat 599, 1 student.
15. 2012 Spring, Reading and Research, Stat 650, 2 students.

Curriculum Development or Teaching Administrative Positions:

I have taught a total of 11 different courses at UNM from Fall 2008 to Spring 2022. Throughout this period, I took charge of creating lecture notes, assignments, and exams for each course I taught. In Spring 2018, I developed a fresh curriculum specifically for the course titled "Statistical Computing" (Stat 590). Similarly, in Spring 2012, I designed a new curriculum for the course "Nonparametric Curve Estimation" (Stat 586) and consistently updated it each time I taught the course. For a comprehensive overview of the 11 courses I taught, please refer to Table 1.

Table 1: Summary of Courses Taught

Name	Text Author(s)	Description
Statistical Computing	Lecture notes	Algorithm development for problem-solving using resampling and simulation techniques, tailored for graduate students
Nonparametric Curve Estimation	Eubank	Theoretical and practical knowledge of smoothing and nonparametric regression techniques for graduate students
Stochastic Process	Ross	Application of stochastic models for graduate students
Probability	Casella & Berger	Probability theory for undergraduate and graduate students
Statistical Inferences	Casella & Berger	Theory of statistical inference for undergraduate and graduate students
Regression Analysis	Kutner, Nachtsheim, Neter, & Li	Comprehensive analysis of regression techniques for undergraduate and graduate students
Analysis of Variance	Kutner, Nachtsheim, Neter, & Li	Analysis of Variance and Experimental Design for undergraduate and graduate students
Sampling: Design and Analysis	Lohr	Theory and practice of sampling techniques for undergraduate and graduate students
Industrial Statistics	Vardeman & Jobe	Statistical methods tailored for solving industrial problems, suitable for undergraduate and graduate students
Introduction to Statistics and Probability	Montgomery & Runger	Introduction to mathematical statistics and probability concepts for undergraduate students
Introduction to Statistics	Moore	Fundamentals of statistics for undergraduate students

Service:**Editorships:**

Associate Editor, *Journal of Statistical Computation and Simulation*, Spring 2020 - present

Associate Editor, *Journal of Applied Statistics*, Spring 2020 - present

Reviewer for Journals and Other Publications

Acted as a reviewer for esteemed publications such as *Machine Learning*, *Technometrics*, *Journal of Nonparametric Statistics*, *Statistics and Probability Letters*, *Journal of Statistical Computation and Simulation*, *Communications in Statistics-Theory and Methods*, *Communications in Statistics-Simulation and Computation*, *Journal of Applied Statistics*, *British Journal of Mathematics and Computer Science*, *Journal of Testing and Evaluation*, and *International Journal of Biostatistics*.

Contributed to editorial boards for publications including *Journal of Mathematics and Statistics*, and *Journal of Probability and Statistics*.

Conference Organizing.

AMS Fall Western Sectional Meeting 2021 organizing committee.

I organized a special session titled "Recent Developments in Statistical Modeling and Designs."

This involved inviting experts, selecting relevant topics, and taking the lead in conducting the Zoom conference session.

Educational Services:.

Department

- Committee of Statistics Qualifying Examination, 2010 - present.
- Committee of Statistics Comprehensive Examination, 2010 - present.
- Colloquium Fall 2020 - Spring 2022.
- Statistics seminar, Fall 2020 - Spring 2022.
- Department scheduling committee, 2011-2019.
- Statistics hiring committee, Fall 2018 - Spring 2019, Fall 2010-Spring 2013.
- Applied math hiring committee 2017 - 2018.

College

- Retention committee, 2020-2022 Spring.

University

- Faculty Senate Library Committee, 2020-2022 Spring.
- Director of Statistics Consulting Clinic, 2021 Spring-2022 Spring.