

Jennifer Broatch
Curriculum Vitae
2017

Work

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Employment

Aug. 2012 - Present	Assistant Professor	Arizona State University at the West Campus
July 2007 - Present	External Grant Evaluator	Various School Districts
Aug. 2010 - 2012	Visiting Assistant Professor	Arizona State University (ASU)- Tempe
Aug. 2006 - 2009	Graduate Teaching Assistant	Arizona State University - Tempe
July 2006 - 2007	Research Assistant (Summer)	Arizona State University - Tempe
Aug. 2005 - 2006	Research Assistant	ASU - Center for Research in Science, Mathematics, Engineering and Technology
Aug. 2004 - 2005	Adjunct Faculty	Mesa Community College

Education

2009	Arizona State University	Ph.D. Statistics
2000	Arizona State University	B.S. Economics
2000	Arizona State University	B.A. Mathematics

Academic Awards/Honors/Fellowships

2015-2016	Teaching Excellence Award	New College Arizona State University
2009	Robert G. Maule Excellence in Teaching Mathematics Award	SoMSS Arizona State University

Publications

Refereed Journal Articles

11. Broatch, J., Green, J., and Karl, A. "RealVAMS: An R package for Fitting a Multivariate Value-added Model (VAM)." *R Journal*. *Accepted- pending revisions*.
Contribution: Lead and primary author. Dissemination of NSF grant for which I was PI. The results correspond to R package written for the evaluation of teachers.
10. Rowe, H., Tluczek¹, M., Broatch, J., Gruber, D., Jones, S., Langenfeld, D., McNamara, P., Weinstein, L. "Comparison of trailside degradation across a gradient of trail use in the Sonoran Desert," *Journal of Environmental Management* *Accepted- pending revisions*.
Contribution: Lead statistician on the project with School of Life Sciences (SOLs) faculty, Helen Rowe. Six month statistical project that incorporates many advanced modelling techniques, specifically negative binomial, poisson, and generalized poisson mixed models. I was responsible for all analyses, data visualizations and statistical narrative. This project has led to a partnership for a in-class project (Fall 2017) analyzing additional data collected about birds. (Elsevier Impact factor 3.131)

9. De Alcaraz-Fossoul J, Mancenido, Michelle, Barrot Feixat C, and Broatch, Jennifer. "Ridge width correlations between inked prints and powdered latent fingerprints" *Journal of Forensic Sciences (JFS)* To appear July 2018
Contribution: Provided statistical support to forensics team and junior statistics faculty, Michelle Mancenido. This is the first publication from the SCRA funded project, and the initial grant proposal to the Department of Justice. We are using these initial results to lay the foundation to revise the proposal for a Department of Justice Grant.
8. Broatch, J. and Karl, A. "Multivariate Generalized Linear Mixed Models for Evaluating and Predicting Team Performance" Special Issue of *Italian Journal of Applied Statistics*. To appear.
Contribution: Steve Rigdon was guest editor of the special issue in an effort to broaden the impact of sports statistics abroad. For the manuscript, I worked equally with author Andrew Karl. I provided the statistical model, which is an extension of the multidimensional value-added model I developed for teacher effectiveness. He provided the computing package used to predict the performance.
7. Comeros-Raynal, M., Polidoro, B., Broatch, J., Mann, B., Gorman, C., Buxton, C., Goodpaster, A., Iwatsuki, Y., McDonald, T., Pollard, D., Russell, B., & Carpenter, K. (2016) "Predictors, Patterns, and Processes of Extinction Risk in Porgies (Family: Sparidae)." *Biological Conservation* 202, pp. 88-98.
Contribution: Conducted the key and novel statistical analysis that is at the core of the results in the paper. This paper is the culminating result of a two-year research project. This paper is the foundation for an expanded project to other species with undergraduate honors student, Megan Woodyard.
6. Kanthaswamy, Sree, Ng, Jillian, Broatch, Jennifer, Short, Jennifer and Roberts, Jeffrey. "Mitigating Chinese-Indian rhesus macaque (*Macaca mulatta*) hybridity at the California National Primate Research Center (CNPRC)." *Journal of Medical Primatology*, Version of Record online : 28 JUL 2016, Vol. 45 (6), pgs. 333-335, DOI: 10.1111/jmp.12231.
Contribution: Statistical analysis of reproduction data.
5. Sweat, Ken G., Broatch, Jennifer, Borrer, Connie, Hagan, Kyle and Cahill, Thomas M. (2016) "Variability in Scoville Heat Ratings of Commercially Grown Jalapeño, Habanero and Bhut Jolokia Peppers." *Food Chemistry*, Vol. 210, Nov. 2016, pp. 606-612.
Contribution: Non-parametric statistical analysis. Not responsible for the collection of data. This project led to the development of i-CURES, an NSF-funded project, which I am co-PI.
4. Pivovarova, M., Amrein-Beardsley, A., & Broatch, J., (2016). Value Added Models: Caveat Emptor. *Statistics and Public Policy*, Vol 3 (1), pgs. 1-9, <http://dx.doi.org/10.1080/2330443X.2016.1164641>
Contribution: Worked equally with corresponding author Margarita Pivovarova. I provided the statistical insight, while Margarita provided the educational policy implications.
3. Wilson, Natalia, Broatch, Jennifer, Jehn, Megan, & Davis, Charles III. (2015). "National Projections of Time, Cost and Failure in Implantable Device Identification: Consideration of Unique Device Identification Use." *Healthcare: The Journal of Delivery Science and Innovation* 3 (2015), pp. 196-201 . DOI:10.1016/j.hjdsi.2015.04.003
<http://www.sciencedirect.com/science/article/pii/S2213076415000408>
Contribution: Completed an advanced statistical analysis of the survey results previously published by Wilson and Jehn. This paper focused on the statistical analysis of those results. The article has been well-received by FDA, Pew, and Brookings. It puts "numbers" to the issue of implantable device identification. I prepared all tables, figures and narrative that corresponded to the statistical analysis.
2. Pivovarova, M., Broatch, J., & Amrein-Beardsley, A. (2014). Chetty et al. on the American Statistical Association's recent position statement on value-added models (VAMs): Five points of contention [Commentary]. *Teachers College Record*. Retrieved from <http://www.tcrecord.org/content.asp?contentid=17633>
Contribution: Worked equally with corresponding author Margarita Pivovarova. I provided the statistical insight, while Margarita provided the educational policy implications. (5-yr Impact: 1.19). Work immediately discussed and posted on Diane Ravitch's Blog which has thousands of

followers. <http://dianeravitch.net/2014/08/11/the-holes-in-the-chetty-et-al-vam-study-as-seen-by-the-american-statistical-association/>

1. Broatch, J. and Lohr, S. (2012) "Multidimensional Assessment of Value Added by Teachers to Real-World Outcomes", *Journal of Educational and Behavioral Statistics*, vol. 37, 2: pp. 256-277. Journal Impact Factor: .935 (2013) 1.074 (2012). Number of Citations as of August 31, 2015 =10.
Contribution: Lead and primary author. I was responsible for all aspects of research and manuscript preparation.

Manuscripts Under Review

- Contreras Rodriguez, J., Lupone, T., Marsh, T., Almajan, A., Hussain, S., Broatch, J. and Hackney, J. "Identification of systemic injury response genes in *Drosophila melanogaster*." Submitted 2/2017 to the *PeerJ*.
Contribution: Joint undergraduate statistics-biology student research. I am responsible for the statistical analysis of the gene expression. This paper incorporates the collaboration between biology and statistics undergraduate students in the Hackney lab.
- Irimata, Kyle, Broatch, J., and Wilson, J. "GMM Regression Models and Feedback with Time Dependent Covariates," Submitted to *Statistics in Medicine* 7/2017.
Contribution: Co-advisor to Ph.D. student Kyle Irimata. I am responsible for the guidance and revision of manuscript.
- Ken G. Sweat, Pamela A. Marshall, Jennifer L Foltz-Sweat, and Jennifer E. Broatch. "Developing A Course Based Research Experience For Undergraduates: The ASU West Experience," Submitted to *Journal of the Arizona Nevada Academy of Sciences* 7/2017.
Contribution: First piece of dissemination of the grant materials for NSF i-CURE grant in which I am co-PI.

Manuscripts in Progress

- Broatch, J., Green, J., and Karl, A "RealVAMS: Adding Real-World Value to Value Added Models." Expected submission 9/2017 to *Journal of Royal Statistical Society - Series C*.
Contribution: Lead and primary author. Dissemination of NSF grant results.
- Broatch, J. and Lohr, S. "Unlocking Value-Added Assessment Models: Influence and Effects of Model Assumptions on Estimates of Teacher Effectiveness." Expected completion and submission to *Journal of Applied Statistics*: 10/2017.
Contribution: Lead and primary author. I am responsible for all aspects of research and manuscript preparation.
- Broatch, J., Woodyard, M., Comerros-Raynal, M., and Polidoro, B. "Using Classification Trees to Predict Specie Classification," Expected completion and submission to *Statistics and Public Policy*: 10/2017.
Contribution: Emphasizes the statistical analysis and expansion of the analysis from the *Biological Conversation* publication. This work is co-authored by the Undergraduate honors student Megan Woodyard.
- Vazquez, M. Elsa, Broatch, J., and Wilson, J. "Bayesian Multiple Membership Logistic Regression Model Of Instructors And Majors On Student Performance," Expected completion and submission to *Journal of Educational and Behavioral Statistics* 11/2017.

*Published Proceedings - *indicates an undergraduate student*

- Nguyen, D.*, Perez, C.*, Shaban, B.*, Suchoza, Kayla, Broatch, J. and Foltz-Sweat, J. *The Effect of Flower Color on Bee Foraging* *Proceedings of the Arizona-Nevada Academy of Science, 61st Annual Meeting,*

Phoenix, AZ, April 24, 2017.

Contribution: Co-Mentored with Jennifer Foltz-Sweat the research of an interdisciplinary team of biology and statistics undergraduate students.

- Trudel, A.*, Sandrin, S., Short-Meyerson, K., Munden, S.*, and Broatch, J. "The Influence of Parent STEM Experience on Children's Interests in, and Understanding of, STEM Majors and Careers." A paper for the Association of Science Teacher Education International Conference, Reno, NV, January 2016.
- Broatch, J. (2014) "Estimating the Impact of "Real World Outcomes" on Teacher Effectiveness Measurements - Initial Results from RealVAMs Project NSF - DRL #1336027", August 2014; *In JSM Proceedings, Statistics Education Section*, pages 2176-2184. Alexandria, VA: American Statistical Association.
- Landlais, B.*, Howard, J.*, Dern, R.*, Hackney, J. and Broatch, J. "Statistical Analysis of Microarray Data: Identification of Differentially Expressed Genes following injury in the Fruit Fly." *Proceedings of the Arizona-Nevada Academy of Science, 58th Annual Meeting*, Flagstaff, AZ, April 12, 2014.
Contribution: Mentored the research of the undergraduate students (*)
- Contreras-Rodriguez, J.*, Leek, T.*, Hussain, S.*, Hackney, J. and Broatch, J. "Elucidation of Changes in Metabolism and Gene Expression in Response to Localized Tissue Damage in *D. Melanogaster*." *Proceedings of the Arizona-Nevada Academy of Science, 58th Annual Meeting*, Flagstaff, AZ, April 12, 2014.
Contribution: Mentored the research of my undergraduate students (Landlais, B.*, Howard, J.*, Dern), who assisted in the statistical analysis of the project.
- Sanchez, D.*, Polidoro, B. and Broatch, J. "Identification of Threat Factors Impacting 141 Fish Species of Sparidae Family Present Globally." *Proceedings of the Arizona-Nevada Academy of Science, 58th Annual Meeting*, Flagstaff, AZ, April 12, 2014.
Contribution: Mentored the research of the undergraduate student(*)
- Broatch, J. "Keeping the Statistician in Statistics Education", August 2013; *In JSM Proceedings, Statistics Education Section*. Alexandria, VA: American Statistical Association.

Conference Presentations

- Competitively Selected Presentations
 - "RealVAMS: Incorporating 'Real World Outcomes' in Value-Added Models (VAMs)", Conference on Statistical Practice, February, 2016.
"Workshop" presentation: 45 - minute workshop style presentation to an audience of about 200 people. Paired with Tim Hesterburg of Google.
 - "Value Added Models - A Primer and Discussion". Joint Statistical Meetings (JSM), Seattle, August 2015.
Invited panel: Panel selected for a national press release and highlighted by the American Statistical Association. Less than 7% of all presentations at JSM are invited.
 - "Incorporating Real World Outcomes in Value-Added Models (VAMs)," Presented at the National Council on Measurement in Education Annual Meeting (NCME) Chicago, April 2015.
Peer reviewed and competitively selected (less than 10% selected).
 - "Tossing the Tables: Using RStudio to Adapt to Student Learning Styles through Evolving Technology," United States Conference on Teaching Statistics (USCOTS), Cary, NC, May 2013.
Breakout Session Presentation: Competitively selected workshop style presentation.
 - 'Multidimensional Assessment of Value Added by Teachers to Real-World Outcomes' for a special paper session on "Recent Developments in Value-added Models" for Joint Statistical

Meetings (JSM), San Diego, CA August 1, 2012.

Invited Presentation: Invited by the editors of the Journal of Educational and Behavioral Statistics to give talk. Less than 7% of all presentations at JSM are invited.

- Oral Presentations

- “Involving Statistics Students in Course Based Undergraduate Research Experiences (CUREs),” Joint Statistical Meetings, Baltimore, August 2017.
- “RealVAMS: Getting Real-World Value from Value Added Models”, Session on Educational Analytics. Joint Statistical Meetings, Chicago, August 2016.
- TEAMS Project Webinar. “RealVAMS: Incorporating Real World Outcomes in Value-Added Models (VAMs) a Demonstration of the RealVAMS Package,” Presented on the Math Science Partnership Network (MSPnet) to Support and Enrich the evaluation of MSP projects. October 2015.
- “National Projections of Time, Cost and Failure in Implantable Device Identification: Consideration of Unique Device Identification Use.” 2015 Annual Meeting of the American Academy of Orthopaedic Surgeons. 2015 AAOS Annual Meeting in Las Vegas, Nevada, March 24-28. Presented by Natalia Wilson.
- “The Impact of ‘Real World Outcomes’ on Teacher Effectiveness Measurements.” Topic Contributed Panel, Joint Statistical Meetings, Boston, August 2014.
- “New Face of Statistics Education.” Topic Contributed Panel, Joint Statistical Meetings, Montreal, August 2013.
- “Multidimensional Assessment of Value Added by Teachers to Real-World Outcomes.” Graduate Student Colloquium- Arizona State University-Tempe. October 2012.

- Poster Session

- “Databases! A Web-Based Introduction to the Data Science Techniques of Database Querying and Design,” United States Conference on Teaching Statistics (USCOTS), State College, PA, 5/2017. (Peer reviewed)
-Dissemination of the NSF grant with Suzanne Dietrich (PI).
- “CURE as a Research Experience for All: Preparing the Future STEM Workforce,” NSF-Funded NimBioS Workshop, Knoxville, Tennessee 3/2017.
- Dissemination of initial NSF-project results.
- “Making Changes with Technology in Mathematical Statistics,” Virtual Poster: Electronic Conference on Teaching Statistics (eCOTS). Presented with Jennifer Green. May 2016.

Products/Computer Software

- RealVAMS Shiny App: User-friendly App to execute RealVAMS package without coding. <https://jbroatch.shinyapps.io/RVAMSapp/>
- R Package: RealVAMS, Andrew Karl and Jennifer Broatch, “RealVAMS: Multivariate VAM Fitting”, Downloaded at: <http://cran.r-project.org/web/packages/RealVAMS/index.html>.
Description: Fits a multivariate VAM with normally distributed test scores and a binary outcome indicator. This work was supported by National Science Foundation Grant #1336027.
- R Package: mvglmmRank, Andrew Karl and Jennifer Broatch, “mvglmmRank: Multivariate Generalized Linear Mixed Models for Ranking Sports Teams”, Downloaded at: <http://cran.r-project.org/web/packages/mvglmmRank/index.html>.

Grants

Funded Proposals

- Title:** **“Obesity and Irritable Bowel Syndrome (IBS): Assessment of Co-morbidity and Interactions with Gut Microbiota, Vitamin D and Serotonin Levels”**
- Principal Investigator: Todd Sandrin
 Co-PI: Peter Jurutka and Jennifer Broatch
 Sponsor: Mayo Clinic: Ken and Linda Morris Weight and Wellness Solutions Program Awards
- Total Requested: \$9,899
 Percent Recognition: 33%
 Project dates: 3/1/17 - 9/1/18
 Responsibilities: As co-principal investigator, I am responsible for the evaluation of the co-morbidity and interactions proposed in the project.
- Title:** **“Course Based Undergraduate Research Experiences (CUREs)”**
- Principal Investigator: Pamela Marshall
 Co-PI: Jennifer Broatch, Ken Sweat, Thomas Cahill, Jennifer Foltz-Sweat
 Sponsor: National Science Foundation: IUSE-Engaged Student Learning: Design & Development
- Total Requested: \$296,751.00
 Percent Recognition: 25%
 Project dates: 8/1/16 - 7/31/19
 Responsibilities: As co-principal investigator, I am responsible for the integration of statistics in science CUREs as well as the internal evaluation of the program effectiveness.
- Title:** **“Bringing Real VAMS to the Real World”**
- Principal Investigator: Jennifer Broatch
 Sponsor: Internal: New College- Scholarship, Research And Creative Activities (SRCA) Grant
- Total Requested: \$5,000.00
 Percent Recognition: 100%
 Project dates: 6/1/16 - 5/31/17
 Responsibilities: Seed grant to create a web-based “app” to execute the RealVAMS project model.
- Title:** **“Collaborative Research: REALVAMS- Getting Real-World Value From Value Added Models”**
- Principal Investigator: Jennifer Broatch
 Sponsor: National Science Foundation: DRL-1336027
- Total Requested: \$159,625.00
 Percent Recognition: 100%
 Collaborators: Jennifer Green (Montana State) and Walter Stroup (University of Nebraska)
- Project dates: 10/1/13 - 3/31/17
 Responsibilities: As principal investigator, I was responsible for the project design and ongoing implementation of all aspects.

Title: **“Collaborative Research: Databases For Many Majors: Customizable Visualizations To Improve Stem Learning ”**

Principal Investigator: Suzanne Dietrich
 Sponsor: National Science Foundation NSF DUE-1431848/DUE-1431661
 Project dates: September 2014 - August 2017*
 Role: Senior Personnel
 Percent Recognition: 10%
 Responsibilities: *Joined project in 2016 and was not responsible for submission. Created a statistical application for visualizations. Additionally, I have helped evaluate the effectiveness of the visualizations.

Pending Proposals

Title: **“Quantification Of Latent Fingerprint Aging With 3D Imaging And Spatio-Temporal Analysis ”**

Principal Investigator: Josep De Fossul
 Sponsor: Department of Justice (DoJ)
 Project dates: January 2018 - December 2019
 Role: co-PI
 Percent Recognition: 20%
 Responsibilities: Statistical analysis support for forensic science team.

Unfunded Proposals

Title: **“Project PLOT: Promoting the Statistical Literacy Of Arizonas Teachers”**

Principal Investigator: Jennifer Broatch
 Sponsor: Internal- Women and Philanthropy Grant
 Total Requested: \$11,023
 Project dates: 6/1/17 - 5/30/18
 Responsibilities: Project proposed to develop a professional development for teachers 6-12.

Title: **“A Kappa Statistic (I^2 Kappa) to Assess ‘Inter-Indicator’ Consistency: Using Multiple Measures of Teacher Effectiveness to Better Measure and Understand “Value-Added”**

Principal Investigator: Audrey Beardsley
 Role: Co-Principal Investigator
 Sponsor: National Science Foundation (NSF)
 Total Requested: \$310,646
 Percent Recognition: 30%
 Project dates: 7/1/16 - 6/30/18
 Responsibilities: As co-principal investigator, I am responsible for the creation of the statistical measure of consistency. The other partners provide the educational policy application. The proposal received decent reviews with a really strong encouragement to re-submit.

Title: "Curing Limited Undergraduate Research Opportunities With I-Cures: Interdisciplinary Course-Based Undergraduate Research Experiences "

Principal Investigator: Pamela Marshall
 Role: Co-Principal Investigator
 Sponsor: National Science Foundation (NSF)
 Total Requested: \$597,046
 Percent Recognition: 21%
 Project dates: 1/1/16 - 12/31/18
 Responsibilities: As co-principal investigator, I was responsible for the statistical mentorship of the students and the integration of the statistical ideas within in the CUREs.

Title: "Collaborative Research: Dimensions: Linking Genetic, Functional, And Phylogenetic Consequences Of Localized Marine Extinctions "

Principal Investigator: Beth Polidoro (Ken Carpenter)
 Role: Co-Principal Investigator
 Sponsor: National Science Foundation (NSF)
 Total Requested: \$240,457
 Percent Recognition: 50%
 Project dates: 1/1/16 - 12/31/2020
 Responsibilities: As co-principal investigator, I was responsible for the statistical analysis of the extinction and population patterns.

Title: "A Kappa Statistic (I^2 Kappa) to Assess "Inter-Indicator" Consistency: Using Multiple Measures of Teacher Effectiveness to Better Measure and Understand "Value-Added"

Principal Investigator: Audrey Beardsley
 Role: Co-Principal Investigator
 Sponsor: Institutes of Educational Sciences (IES)
 Total Requested: \$900,000
 Percent Recognition: 20%
 Project dates: 6/1/15 - 5/30/18
 Responsibilities: As co-principal investigator, I am responsible for the creation of the statistical measure of consistency. The other partners provide the educational policy application.

Title: "Analysis of an Injury Response Checkpoint Influencing Developmental Timing"

Principal Investigator: Jennifer Hackney
 Role: Co-Principal Investigator
 Sponsor: HHS-NIH-NICHD
 Total Requested: \$434,289.00
 Project dates: 7/1/14 - 6/30/17
 Notes: This proposal has led to a valuable collaboration with Jennifer Hackney and her lab. Statistics and biology students have collaborated and presented research that resulted from this proposal.

- Title:** “**Experiential Undergraduate Introduction To RNA-Seq Analysis: Identification Of Differentially Expressed Genes Following Injury In The Fruit Fly**”
- Principal Investigator: Jennifer Broatch
 Sponsor: ASU Foundation
 Total Requested: \$3,092.00
 Project dates: 1/20/14 - 5/1/15
 Notes: This was a small scale attempt to procure funding for an expensive RNA-Seq analysis for our (Hackney and Broatch) mutual students to analyze.
- Title:** “**Multidimensional Estimates Of Teacher Value Added**”
- Principal Investigator: Jennifer Broatch
 Sponsor: National Academy Of Education
 Total Requested: \$25,000
 Project dates: 2/1/13 - 1/31/14
 Notes: This unfunded project led to the ideas for the funded NSF project.
- Title:** “**Analysis of an Injury Response Checkpoint Influencing Developmental Timing**”
- Principal Investigator: Jennifer Hackney
 Sponsor: HHS-NIH-NICHD
 Total Requested: \$460,065
 Project dates: 7/1/13 - 6/30/16
 Notes: This proposal has led to a valuable collaboration with Jennifer Hackney and her lab. Statistics and biology students have collaborated and presented research that resulted from this proposal.
- Title:** “**I-Stats: Integrated Statistics Professional Development**”
- Principal Investigator: Jennifer Broatch
 Sponsor: NSF-EHR
 Total Requested: \$810,618
 Project dates: 7/1/13 - 6/30/16
 Notes: This proposal has led to a valuable collaboration with the Chandler Unified School District and Maricopa County Educational Services Agency. In the future, I expect to expand my statistics education research into professional development for middle school and high school teachers.

Courses Taught

Courses Taught at ASU West

Year	Semester	Delivery	Course	Course Title	Enrollment
2017	Fall	Individual	STP499	Individualized Instruction- CURE	1
2017	Fall	Individual	STP499	Honors Directed Study	1
2017	Fall	Classroom	STP 280	Probability & Statistics for Researchers	33
2017	Fall	Classroom	STP 311	Regression and Time Series Analysis	8
2017	Spring	Classroom	STP 485	Capstone (co-taught) Project Leader	3 of 8
2017	Spring	Classroom	STP 450	Non-Parametric Statistics	9
2017	Spring	Classroom	STP 311	Regression and Time Series Analysis	14
2016	Fall	Individual	STP499	Individualized Instruction- CURE	2
2016	Spring	Classroom	STP 485 †	Capstone (co-taught with Dr. Berger)	10
2016	Spring	Classroom	STP 311 †	Regression and Time Series Analysis	14
2015	Fall	Classroom	STP 280	Probability & Statistics for Researchers	20
2015	Fall	Classroom	STP 427*	Mathematics Statistics	10
2015	Spring	Classroom	STP 450	Non-Parametric Statistics	12
2015	Spring	Classroom	STP 311	Regression and Time Series Analysis	13
2014	Fall	Classroom	STP 280	Probability & Statistics for Researchers	18
2014	Fall	Online	STP 226	Elements of Statistics	203
2014	Spring	Classroom	STP 450**	Non-Parametric Statistics	2
2014	Spring	Classroom	STP 311**	Regression and Time Series Analysis	4
2013	Fall	Classroom	STP 280	Probability & Statistics for Researchers	15
2013	Spring	Online	STP 226	Elements of Statistics	126
2012	Fall	Classroom	STP 280**	Probability & Statistics for Researchers	6

*New course preparation

**Course developed and taught for the first time at ASU

†Course taken over in week 5 for Dr. Borrer.

Previous Courses Taught at ASU- Tempe Campus

Year	Semester	Delivery	Course	Course Title	Enrollment
2012	Spring	Internet	STP 420	Introductory Applied Statistics	74
2012	Spring	Internet	STP 420	Introductory Applied Statistics	10
2012	Spring	Classroom	STP 429	Experimental Statistics	35
2011	Fall	Classroom	STP 532	Applied Nonparametric Statistics	18
2011	Spring	Classroom	STP 420	Introductory Applied Statistics	58
2011	Spring	Classroom	STP 429	Experimental Statistics	32
2010	Fall	Classroom	STP 420	Introductory Applied Statistics	43
2010	Fall	Classroom	STP 532	Applied Nonparametric Statistics	20

Student Mentoring

Undergraduate

- Faculty mentor- NCUIRE (The New College Undergraduate Inquiry & Research Experiences):
 - Fall 2015: Research Assistant: “The Influence of Parent STEM Experience on Children’s Interests in, and Understanding of, STEM Majors and Careers.”
 - Spring 2015: Research Assistant: “A Comparison Of Arraystar And The Open-Source Software R For The Statistical Analysis Of Microarray Data.”

- Summer 2014: Scholarship: "Identification of Threat Factors and Similarities among Potentially Threatened Marine Fish Species"
- Spring 2014: Research Assistant: "Identification of Threat Factors Impacting 1400 Fish Species of Bony Fish Present in Eastern Central Atlantic"
- Spring 2014: Team Award: "Statistical Analysis of Microarray Data: Identification of Differentially Expressed Genes following Injury in the Fruit Fly"
- Spring 2013: Research Assistant: "Do Ballparks add 'Value' to a Player's Performance?"
- Individualized Instruction:
 - Fall 2017: I instructed a statistics student as a part of the CURE project. The students participated in an interdisciplinary team that analyzed data collected in LSC 388: Research Fundamentals for the Natural Sciences, Topic: Bee Ecology in Urban and Wild Habitats.
 - Summer 2017: LSC388 I instructed two statistics students as a part of the CURE project. The students participated in an interdisciplinary team that analyzed data collected in LSC 388: Topics in Environmental Microbiology.
 - Fall 2016: I instructed two statistics students as a part of the CURE project. The students participated in an interdisciplinary team that analyzed data collected in LSC 388: Research Fundamentals for the Natural Sciences, Topic: Bee Ecology in Urban and Wild Habitats.

Undergraduate Honors

- Thesis Advisor: Projected thesis completion Spring 2018.
- Course Honors Credit: STP280 (Fall 2012, 2013, 2014).
- Thesis Advisor, Thesis Title: "Comparison of Longitudinal Binary Models with Time-dependent Covariates," Graduated: Spring 2012 (Tempe Campus).

Graduate

- Master's committee member, Thesis Title: "Predictive Modeling Of Semester Performance With Multiple Memberships And Bayesian Estimates," Graduation Spring 2016.
- Master's committee member, Thesis Title: "Modeling Hotel Industry Reviews With Hierarchical Structures," Graduation Spring 2016.
- Master's committee member, Thesis Title: "Measurement Systems Analysis Studies: A Look at the Partition of Variation (POV) Method," Graduation Winter 2015.
- Doctoral committee member: "A Test and Confidence Set for Quadratic Growth Curves," Graduation Summer 2015.
- Master's committee member, Thesis Title: "Changes in the Residential Class Consumption Following a Rooftop Solar Installation," Graduation Summer 2015.
- Master's committee member, Thesis Title: "Sources of Correlation on a Hierarchical Regression Model," Graduation Summer 2014.
- Master's committee member, Thesis Title: "Comparing Neural Network and Logistic Regression in Analyzing Data with Presence of Multicollinearity using SAS Procedures," Graduation Summer 2014.
- Dissertation Committee Member - Emily Schartz, Ph.D. Music ,Thesis Title: " The Difference In Attributions Of Success And Failure, Out-Of- Class Engagement, and Predictions of Future Success of Middle School Band Students in Open and Closed Composition Tasks," Graduation: May 2014. Role: I provided guidance and analysis for the survey conducted during Emily's research.

- Dissertation Committee Member - Arturo Valdivia, Ph.D. Statistics, Thesis Title: "Alternative Methods via Random Forest to Identify Interactions in a General Framework and Variable Importance in the Context of Value-Added Models," Graduation: May 2013

Service

Professional Service

- Associate Editor: *Journal of Quantitative Sports Analysis*.
- Manuscript Review for journals: *American Educational Research Journal*, *Statistics, Politics, and Policy*, *Journal of Educational and Behavioral Statistics*, *Journal of Research on Educational Effectiveness*, and *Educational Policy Analysis Archives*.
- Joint Statistical Meetings 2015 Program Committee (Section of Councils Representative)
- Statistics Content Expert- United States Census Bureau's Statistics in Schools project. Evaluate statistics lessons for K-6 for statistical accuracy and adherence to statistical standards for national distribution (<http://www.census.gov/census-sis/>).
- Professional Development Presenter- One day statistics content and pedagogical workshop for high school and middle school teachers. Arizona Department of Education (2015), Glendale High School District (2016).
- High School Standards Development for the AZ State Department of Education- Member of committee that revised the high school math standards. I was responsible for ensuring that the statistical portions were written accurately and appropriately.
- External Grant Evaluator for multiple United States Department of Education (USDoE): Math Science Partnership (MSP) Grants *Evaluation of summer educational interventions (data collected in June and evaluated in July for all projects)
 - Chandler Unified School District:** Chandler Intel Mathematics Academy- Response to Intervention (2013-2015), Science Matters (2014-2015), Chandler Intel Mathematics Academies (2009-2011), and Physical Science Investigators and Chandler Science Investigators (2007-2008)
 - Maricopa County Education Service Agency:** FOCUS: Formative Assessment Opportunities and Content Training Using a Systematic approach (2015)
 - Gila County Education Service Agency:** GEORG: Gila Energy and Organisms (2015), FAMUS (2016)
 - Crane Unified School District:** Intel Math (2015)
 - Agua Fria School District:** SIMPLE - Integration of Math and Science (2016)
 - Paradise Valley Unified School District:** Intel Math (2016)
 - Washington Elementary School District:** Intel Math (2015)
 - The evaluation for the projects in 2009/ 2010 were recognized as meeting the highest standard of rigor in evaluation (2 of 55 national projects recognized). There were more than 2000 projects that are reviewed for rigor. My evaluation reports are used as exemplars.
 - I provided general statistical support for the projects, including experimental design, data analysis and methodology development. Including the preparation of the evaluation portion of the annual report for submission to the state of Arizona and United States Department of Education. The evaluation analyzed the impact of the program on teacher practice, teacher knowledge and student achievement, and worked closely with the district's grant administrators to ensure project success, by providing informative assessment results.
- Special award judge for the American Statistical Association at the International Science and Engineering Fair (ISEF) Spring 2013.

University/School Service

- Statistics Program Lead (2017) - Starting in 2017, I will serve as program lead for statistics. In 2016, I began learning duties and requirements of the position.
- Program Assessment (2015-Present) - Completed the University required program assessment for the BS Statistics program.
- Road to the University Presenter (2016) - Gave a 30 minute presentation of the statistics program and discipline to promote the program at West.
- Informal committee member of the Statistics Search Committee (2016-2017)- although I am not a formal "member" of the committee since I was on course release in the fall, I have participated in candidate selection and interviews.
- ACETS Evaluation Member- AZ Course Equivalency Tracking system (2015-Present) - From 2015-2016 I reviewed math and statistics course equivalency for transfer credit. Starting in fall 2016, I review only statistics courses.
- Committee member (2015-Present) New College Representative - Curriculum and Academic Programs Committee (CAPC)
- Committee member (2016-Present) MS Committee - develop a Masters of Science degree that reflects the interdisciplinary nature of our School.
- Committee member (2013-2015) Summer Reading - selects book relevant to University theme to be read by incoming Freshman.
- Committee member (2014-2015) Teaching Evaluation - reviews current teaching evaluation metric and will suggest alternate wording for evaluation questions.
- Stat Club Faculty Advisor (2014-Present) - established an undergraduate statistics club to help promote student leadership in the field of statistics.

Community Service

- Arizona/ International Science and Engineering Fair- (High School Students)
 - Fall - Present a statistical workshop to assist students in their presentations
 - Spring - Judge presentations at both state events. Provide feedback to participants and invite to local American Statistical Association meeting for further award.
- Workshop Developer - Developed a statistics and sports themed workshop for the Sport STEM Camp, a set of theme-based workshops for students who are currently in grades 5-9. I developed the workshops and a statistics student taught the camp. Project was sponsored by a grant from the Women & Philanthropy group of the ASU Foundation. PI: Susannah Sandrin.
- Open Door: provided a statistical activity for community event.
- Workshop Developer - Developed a statistics themed workshop for the ExSciTE project, a set of theme-based workshops for students who are currently in grades 5-9, sponsored by a grant from the Women & Philanthropy group of the ASU Foundation. PI: Susannah Sandrin.

Professional Organizations

- Member: American Statistical Association, Faculty Women's Association, National Council on Measurement in Education