Melissa Innerst, Ph.D.

CONTACT INFORMATION

Department of Mathematics
Juniata College
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RESEARCH INTERESTS

Spatial statistics, time series analysis, statistical computing and graphics, survival analysis, mathematics and statistics education

EDUCATION

Baylor University, Waco, Texas, USA

Doctor of Philosophy (Ph.D.) **May 2020**

- Advisors: Dr. Joon Jin Song and Dr. Jack D. Tubbs
- Title: *Lehmann ROC Regression and Spatial Classification*

Master of Science (M.S.), Statistics **August 2015 – December 2016**

- GPA : 3.94

Texas Lutheran University, Seguin, Texas, USA

Bachelor of Science (B.S.), Mathematics **August 2011 – May 2015**

- GPA : 4.00 – *Summa Cum Laude*

TEACHING EXPERIENCE

Juniata College, Huntingdon, Pennsylvania, USA

Assistant Professor of Mathematics and Statistics **August 2019 – Present**

- MA 220: Introduction to Probability and Statistics
- MA 205: Elementary Statistics
- DS 110: Introduction to Data Science
- MA 130: Calculus I
- MA 321: Multivariate Statistics
- MA 100: Precalculus

Baylor University, Waco, Texas, USA

Teacher of Record **August 2016 – May 2019**

- STA 1380: Elementary Statistics
- STA 3381: Probability and Statistics

Teaching Assistant **August 2015 – May 2019**

- Provided tutoring in the Statistics Tutoring Lab for undergraduate students from a variety of undergraduate statistics courses
- Assisted professors by grading assignments and exams

Texas Lutheran University, Seguin, Texas, USA

Teaching Assistant **January 2012– May 2015**

- Assisted professors by grading assignments for Algebra, Calculus II, Calculus III, and Introductory Statistics.

Research Experience

Baylor University, Waco, Texas, USA

Graduate Research Assistant — **August 2015 – May 2019**

Professional Experience

Texas Lutheran University, Seguin, Texas, USA

Interim Administrative Assistant — **June 2014 – August 2014**

Awards

Graduate

- Graduate School Fellowship, 2015 (5 year award). Awarded by the Graduate School based on undergraduate GPA and GRE scores.
- Outstanding First Year Graduate Student, 2016. Awarded by the Department of Statistical Science for exceptional performance during the first year of study.
- Outstanding Teacher, 2019. Awarded by the Department of Statistical Science for exceptional performance as a teacher of record.

Undergraduate

- Delta Epsilon Iota Honor Society
- Alpha Chi Honor Society
- Alpha Chi Region I Scholarship, 2015. Awarded at the Alpha Chi Honor Society National Convention for excellence in undergraduate research.

Invited Presentations

Bold denotes presenter.

Innerst, M. "Estimation of Precipitation Area Using Spatial Classification." *Shippensburg University Department of Mathematics Lecture Series*, Shippensburg University, Shippensburg, PA, USA, November 21, 2019.

Innerst, M. "Estimation of Precipitation Area Using Spatial Classification." *Department of Mathematical and Digital Sciences Undergraduate Colloquium Series*, Bloomsburg University, Bloomsburg, PA,USA April 7, 2020. [CANCELED DUE TO COVID-19]

Innerst, M. "Estimation of Precipitation Area Using S-Band Dual Polarization Radar Measurements." *Virtual Joint Math Colloquium Millersville University and Franklin & Marshall College*, Virtual Talk, April 8, 2021.

Conference Presentations

Bold denotes presenter.

Innerst, M., Shin, K., Ye, B., Lee, G., and Song, J. "Estimation of Precipitation and No Precipitation Areas Using Spatial Classification" *JSM 2020*, Virtual , August 2–6, 2020.

Innerst, M. and Tubbs, J. "Lehmann ROC Regression for Longitudinal Data" *JMM 2020*, Denver, CO, USA , January 15 – 18, 2020.

Innerst, M.,"An Introduction to the Lehmann Family of ROC Curves with Extensions to Covariate-Adjusted and Longitudinal Data Cases" *MBSW 2019*, Indianapolis, Indiana, USA, May 20 – 22, 2019.

Innerst, M. and Tubbs, J. "A Comparison of ROC Regression Techniques" *JMM 2019*, Baltimore, MD, USA , January 16–19, 2019.

Innerst, M., Shin, K., Ye, B., Lee, G., and Song, J.J. "Comparison of spatial classification methods for estimating precipitation area in South Korea." *SACNAS 2018*, San Antonio, TX, USA , October 11–13, 2018.

Published Peer Reviewed Articles

Innerst, M., Tubbs, J., and Ghebremichael, M. (2021). "A Comparison of the Lehmann ROC with GLM ROC Regression Models." *Journal of Applied Statistics*.

Articles under Peer Review

Innerst, M., Tuubs, J., and Ghebremichael, M. (2020). "ROC Regression for Repeated Measures Models." *Journal of Data Science*. (submitted 02/10/2020)

Song, J., Innerst, M., Shin, K., Ye, B., Lee, G.. (2021). "Estimation of Precipitation Area Using S-Band Dual-Polarization Radar Measurements." *Remote Sensing*. (submitted 03/25/2021)

Articles in Preparation

Casement, C., Innerst, G., Innerst, M.. (2021). "A web-based application for generating new versions of math-based assignments created using LaTeX."

R Packages

Innerst, M., Innerst, G. (2019) **pupR**: Your Daily Dose of Doggo. R package version controlled with Git on Github.

Innerst, M., Odom, G., Barnard, B., Kazor, K., Hering, A. (2017). **MvMonitoring**: Multi-State Adaptive Dynamic Principal Component Analysis for Multivariate Process Monitoring. R package distributed by CRAN. License : GPL-2.

Technical Skills

Programming: R, Wolfram (Mathematica), BUGS (WinBugs/OpenBugs), STAN, (R) Markdown, SAS, Maple, Sage, SQL

Version Control: Git, GitHub user @melissanjohnson

Applications: JMP, MiniTab, Rstudio, TEX / LATEX / BIBTEX, Apple Productivity Apps (Pages, Keynote, Numbers), XCode, Microsoft Office Suite (Word, PowerPoint, Excel)

Operating Systems: Mac OS X, Microsoft Windows

Professional Affiliations

American Mathematical Society (AMS)

American Statistical Association (ASA)
– Section on Statistical Computing Member
– Section on Statistical Graphics Member
– Section on Statistical Learning and Data Mining Member
– Section on Statistics and the Environment Member
– Harrisburg Chapter Member

Association for Women in Mathematics (AWM)

Mathematical Association of America (MAA)
– Silver '19 Project NExT Fellow
– Allegheny Mountain Section Member
– Allegheny Mountain Section NExT Fellow

– SIGMAA Stat Ed Member

Society for the Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS)

Service to the University

Juniata College Huntingdon, Pennsylvania, USA

Student Academic Committee (SAD) Committee Member **August 2020 – Present**
Equity, Diversity, and Inclusion (EDI) Council Member **October 2020 – Present**

Baylor University, Waco, Texas, USA

Graduate Student Association Representative **August 2017 –May 2019**
First In Line Student Association (FILSA) Mentor **August 2018 – May 2019**

Service to the Profession

AP Statistics Reader **June 2019 – Present**
Session Chair at the 2020 Conference on Statistical Practice **February 2020**
Undergraduate Poster judge at the Joint Mathematics Meeting **January '20 & '21**
Undergraduate Statistics Project Competition (USPROC) Judge **Feburary 2021**
COMAP Mathematical Contest in Modeling (MCM) Judge **February 2021**