Grant L. Innerst

CONTACT INFORMATION

Department of Mathematics
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RESEARCH INTERESTS

Statistical computing, algebraic statistics, statistics education, categorical data analysis

EDUCATION

Baylor University, Waco, Texas, USA **August 2015 – August 2019**

Doctor of Philosophy (Ph.D.), Statistics **August 2019**

- Advisor: Dr. David J. Kahle
- Title: *Contributions to Computational Algberaic Statistics*

Master of Science (M.S.), Statistics **August 2015 – January 2017**

Shippensburg University, Shippensburg, Pennsylvania, USA

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

Teaching And Professional Responsibilities

TEACHING EXPERIENCE

Shippensburg University, Shippensburg, Pennsylvania, USA

Assistant Professor **Fall 2019 - Present**

- MAT 117 - Applied Statistics
- MAT 140B - College Algebra
- MAT 175 - Precalculus
- MAT 217 - Statistics I
- MAT 219 - Data Science I
- MAT 317 - Statistics II
- MAT 319 - Data Science II
- MAT 375 - Probability and Statistics For Engineers
- MAT 491 - Selected Topics in Applied Mathematics (Time Series)

Baylor University, Waco, Texas, USA

Teacher of Record in Information Systems **August 2017 – August 2019**

- QBA 2302 – Business Data Analysis I
- QBA 3305 – Introduction to Business Analytics

Teacher of Record in Statistical Science **August 2016 – August 2017**

- STAT 1380 – Elementary Statistics

Instructor **Summer 2017, Summer 2018**

- Designed and presented daily lectures on statistical computing, statistical theory, relevant academic topics for a summer research group. Provided computational and theoretical support for students' research projects.

Teaching Assistant **August 2015 – August 2016**

- Provided support for undergraduates taking introductory statistics classes.
- Graded daily assignments and assisted in grading exams.

Shippensburg University, Shippensburg, Pennsylvania, USA

Student Teaching Experience **January 2015 – May 2015**

- Completed student teaching experience at Central Dauphin High School.
- Duties included but were not limited to preparing class notes, creating lesson plans, teaching, reflecting on teaching methods and effective learning strategies.
- Courses taught: Algebra I, Algebra II, Intermediate Algebra.

Teaching Assistant **January 2014 – December 2014**

- Lead out of class review sessions for single variable and muti-variate calculus classes.

Department Tutor **August 2012 – December 2014**

- Tutored courses ranging from college algebra to multivariate calculus and statistics.

ADVISING

Shippensburg University, Shippensburg, Pennsylvania, USA
- Advisor for 6 mathematics majors
- Secondary Advisor to half of all data science minors

Continued Scholarly Growth

PROFESSIONAL ACCREDITATIONS

GStat Accreditation from the American Statistical Association (ASA)

ARTICLES IN PREPARATION

Casement C, et. al. "A web-based application for generating new versions of math-based assignments created using LaTeX"

Innerst G. and M Innerst. "Using The History of Statistics In A Modern Introductory Statistics Classroom"

Innerst G. and D. Kahle "**bertini**: A Backend Connection to the Numerical Algebraic Geometry Package Bertini in R."

Innerst G. and D. Kahle. "Practical Approaches to Accelerating Exact Conditional Inference in Discrete Exponential Families."

BOOK REVIEWS

The Handbook Of Graphical Models for MAA Reviews

R PACKAGES OWNED/CREATED

Innerst M and G Innerst (2019).
pupR: Your Daily Dose of Doggo. R package version controlled with Git and GitHub. Licence: GPL-2.

Gao, P., G. Innerst, D. Kahle, D. Kim, R. Yoshida, X. Zhang (2017).
tropical: Tropical Geometry in R. R package version controlled with Git and GitHub. Licence: GPL-2.

Contributed R Packages

Kahle D. (2019). **bertini**: Bertini in R. Contributions to the package include developing a common syntax to allow for more complex Bertini functions and implementing those functions in the package.

Departmental Presentations

Innerst, G. "An Introduction To Time Series" *Shippensburg University Department of Mathematics lecture series*, Shippensburg , Pennsylvania, USA, October 8th, 2020.

Innerst, G. "An Introduction To Homotopy Continuation" *Shippensburg University Department of Mathematics lecture series*, Shippensburg , Pennsylvania, USA, April 2nd, 2020. (Cancelled)

Innerst, G. "Approaching Statistical Estimation Problems Through an Algebraic Geometric Lens" *Shippensburg University Department of Mathematics lecture series*, Shippensburg , Pennsylvania, USA, December 5th, 2019.

Innerst, G. "MCMC Strategies to Enhance Exact Conditional Inference in Discrete Exponential Families." *Shippensburg University Department of Mathematics lecture series*, Shippensburg , Pennsylvania, USA, March 8, 2018.

Invited Presentations

Innerst, G. "Approaching Minimum Chi-Square Estimation Through an Algebraic Geometric Lens" *Bloomsburg University Mathematical and Digital Sciences Lecture Series*, Bloomsburg, Pennsylvania, USA, February 18th, 2020.

Conference Presentations

Bold denotes presenter.

Innerst, G. and D. Kahle. "Practical Approaches to Accelerating Exact Conditional Inference in Discrete Exponential Families." *2020 Joint Statistical Meetings,* Virtual Meeting, August 2 – 6, 2020. (Poster)

Innerst, G. and D. Kahle. "Solving Statistical Estimation Problems with Algebraic Geometric Tools." *2020 Joint Mathematics Meetings,* Colorado Convention Center, Denver, Colorado, USA, January 15 – 18, 2020. (Talk)

Innerst, G. and D. Kahle. "An Algebraic Approach to Minimum Chi-Square Estimation." *2019 Joint Mathematics Meetings,* Baltimore Convention Center, Baltimore, Maryland, USA, January 16 – 19, 2019. (Talk)

Innerst, G. and D. Kahle. "An Algebraic Approach to Minimum Chi-Square Estimation." *2018 Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) National Diversity in STEM Conference,* Henry B. González Convention Center, San Antonio, Texas, USA, October 10 – 13, 2018. (Poster)

Hossu, P., C. Sun, G. Innerst, R. Hebdon, and D. Kahle. "A Geometrically-Inspired Discrepancy for Categorical Probability Distributions." *Annual College of Science Poster Day*, Illinois Institute of Technology, Chicago, Illinois, USA, August 17, 2018. (Award: Best Applied Math Poster)

Innerst, G., D. Kim, P. Gao, and D. Kahle. "MCMC Strategies to Enhance Exact Conditional Inference in Discrete Exponential Families." *2017 Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) National Diversity in STEM Conference,* Salt Palace Convention Center, Salt Lake City, Utah, USA, October 19–21, 2017. (Poster)

Kim, D., P. Gao, G. Innerst, and D. Kahle. "Accelerating Exact Conditional Inference in Discrete Exponential Family Models." *2017 Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) National Diversity in STEM Conference,* Salt Palace Convention Center, Salt Lake City, Utah, USA, October 19–21, 2017. (Poster)

Funded Undergraduate Research

Mankamyer, A "Estimating Crowd Attendance At Open-Air Events Using Spatio-Temporal Statistical Methods." Funding from an SU Student/Faculty Research Engagement (SFRE) grant. Summer 2020. Amount: $562.50

Conference Attendance

- Electronic Conference On Teaching Statistics (ECOTS), May 18 - 22nd, 2020.
- AMS Mini-Conference on Education: Mathematics Departments and the Explosive Growth of Computational and Quantitative Offerings in Higher Education. October 25th, 2019.
- EPaDel Careers in Mathematics Conference and Section NExT Symposium (Accompanied Two Students). October 5th, 2019.

Professional Employment

Advance Placement (AP) Program

- Reader for AP Statistics Exam (2019-Present)
  - Duties include reading 1000-2000 exams on multiple questions.
- Independent Contractor for the AP Program (2020 - Present)
  - Duties include Auditing AP Statistics Syllabi to determine if they meet the standards set forth by the Advanced Placement (AP) Program and advising the AP Program on special topics related to the AP Statistics curriculum.
  - An auditor will review over 1000 sylllabi per year.

Consortium For Mathematics and its Applications

- Problem C Triage Judge (2020 - Present)
  - Judge 100-150 prospective papers and bin them into proper categories.

Contributions To The University and Community

Professional Service

Committee Service

- Special Interest Group for the Mathematical Association of America in Statistics Education (SIGMAA - StatEd)
  - Program Chair (2021 - 2022)
    - Duties includes soliciting and submitting proposals for sessions such as contributed paper sessions and minicourses at MathFest and JMM, as well as other workshops, conferences, etc., from the SIGMAA membership. The program chair will also arrange sessions at MathFest and JMM that are directed primarily at the SIGMAA membership, such as guest lectures and business meetings.
- SIAM Subcommittee for Science and Engineering Fair
  - Created materials for various activities held at the US Science and Engineering Fair

- Created an interactive web application for said activities when the modality of the fair moved online due to COVID-19

- Pennsylvania Department of Education Transfer and Articulation Oversight Committee (TAOC)- Mathematics Subgroup. 2021 - Present
  - Duties include reviewing DSST and IB exams to determine how credit will be given when transfered to universities.

Judging

- Undergraduate Statistics Project Competition (USPROC)

Service At Professional Gatherings
Sessions at meetings (O = organized, C = chaired, J = poster competition judge)

1. Making a Difference in the Real World? Applications of Meta-Analysis, 2020 Conference on Statistical Practice (CSP) (C)
2. MAA General Contributed Paper Session on Probability and Statistics, 2020 Joint Mathematical Meetings (C)
3. 2020 Joint Mathematical Meetings (J)

University Awards

- 2020 Scholar-Athlete Mentor

University Service

APSCUF

- Faculty contract ratification vote poll sitter
- Committee Membership
  - H.O.P.E Diverstiy Scholarship Committee
  - New Student Orientation Committee

Department Service

Committee Service

- Mathematics Curriculum Committee
  - Chair 2020-2021
- Scholarship Committee

Clubs And Organizations

- Data Science Club (Advisor and Organizor)
- Active Member in the Math and SIAM clubs

Community Service

Choral Singing

- Shippensburg University Concert Choir Faculty Member at large
- Chambersburg Towne Signers Member

Professional Affiliations	American Statistical Association (ASA) Mathematical Association of America(MAA) — EPaDel Section — Section NExT Member — SIGMAA Stat Ed Member American Mathematical Society(AMS) Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
Technical Skills	R package development and stochastic simulation Programming: R (Including R Markdown), Python, Julia, Wolfram (Mathematica), BUGS (WinBugs/OpenBugs), STAN, Shell, C++, SAS, SQL Version Control: Git, GitHub user @GrantInnerst Applications: Rstudio, TEX / LATEX / BibTEX, XCode, Microsoft Office Operating Systems: Mac OS X, Microsoft Windows, Linux/Unix builds