JASON ROBERT BAILEY

EDUCATION

Texas Tech University

M.S. Applied Mathematics, December 2021 (GPA – 4.00)

- Thesis: "A Statistical and Computational Method for Developing A New Metric for Evaluating Gerrymanders"
- Advisor: Leif Ellingson

Southern Methodist University

B.S. Applied Mathematics, May 2019 (GPA – 3.97)

Southern Methodist University

Minor in History, May 2019

ACADEMIC AND TEACHING EXPERIENCE

Texas Tech University

Lecturer and Research Associate

16 January 2023 – Present (Paid)

Texas Tech University

Instructor of Record and Research Associate

Course Coordinator for MATH 2345 for the Department of Mathematics and Statistics and director of new and existing materials and covered content for all MATH 2345 sections. Research with the Quantitative Finance group on factors impacting real estate prices and participation in an upcoming NSF proposal on ESG (Environmental, Social, Governance).

1 January 2022 – 15 January 2023 (Paid)

Texas Tech University

Graduate Part-Time Instructor

Responsible for the development of new materials for MATH 2345 for the Department of Mathematics and Statistics, which can be viewed in part on the department's official YouTube channel along with accessing of the non-video materials through Drs. Toda and Wang. Listed as the course coordinator for virtual departmental materials for the Fall of 2021 for MATH 2345. Additionally instructed undergraduate students in the undergraduate quantitative finance course of MATH 3356.

16 March 2020 – 31 December 2021 (Paid)

Texas Tech University

Research Assistant

Working with Drs. Rachev, Lauria, and Lindquist (among others) on using generalized additive models for identifying early warning signals for real estate bubbles, among other topics.

1 August 2021 – Present Day (Paid)

24 August 2020 – 31 July 2021 (Unpaid)

Texas Tech University
Graduate Teaching Assistant
Tutoring of undergraduate students in various undergraduate mathematics and statistics subjects with the Department of Mathematics and Statistics' Tutoring Center, grading for Drs. Bennett and Grady and Mr. Nuñez, and transitioning courses to online due to the coronavirus for Dr. Bennett.
1 August 2020 – 15 March 2020 (Paid)

Lawrence E. Elkins High School
Visiting Lecturer for Mrs. Bonnie Bonnette and Mr. William Corrington in "Special Topics in Humanities"
Developed syllabus and overall course structure and administered all grades for the Economics Section of Elkins' Academic Decathlon Team.
15 Dec. 2017 – 19 Jan. 2018 (Unpaid – Volunteer Basis)

Lawrence E. Elkins High School
Teaching Assistant for Mrs. Bonnie Bonnette and Mr. William Corrington in "Special Topics in Humanities"
Created instructive presentations for educational enrichment of students for the Economics and Mathematics Sections of Elkins' Academic Decathlon Team.
3 Jan. 2017 – 6 Apr. 2017 (Unpaid – Volunteer Basis)

RELATED EXPERIENCE

Escape Room Fort Bend LLC
Independent Logistics and Design Contractor
Provided as requested logistical and design advice and propositions for topics including, but not limited to: game design, scheduling, and employee business hours.
19 Mar. 2017 – 31 December 2020 (Paid)

Southern Methodist University
Grader for the Department of Mathematics
Graded as requested all homework and, if needed, quizzes/tests created and administered by the assigned-to Professor.
20 Aug. 2018 – 18 May 2019 (Paid)

COURSE PREPARATION AND DEPARTMENTAL SERVICE

Texas Tech University
As the course coordinator and director of materials,

- MATH 2345: Business Statistics, Spring 2022 – Present Day.

As an instructor of record,

- MATH 1300: Contemporary Mathematics, Summer 2020.
- MATH 2345: Business Statistics, Spring 2021 – Present Day.
- MATH 3350: Higher Mathematics for Engineers I, Spring 2020 (with Dr. Bennett).
- MATH 3356: Quantitative Theory of Interest, Fall 2020.

As a virtual materials course coordinator,

- MATH 2345: Business Statistics, Fall 2021.

As a teaching assistant,

- MATH 1451: Calculus I, Fall 2019, Spring 2020 (with Mr. Nuñez).
- MATH 1452: Calculus II, Fall 2019 (with Dr. Grady).
- MATH 3350: Higher Mathematics for Engineers I, Spring 2020 (with Dr. Bennett).

HONORS, AWARDS, AND SCHOLARSHIPS

Texas Tech University Extra Funds for Outstanding Work
$4,514.70 – Fall 2021

Jantz Analytics Grant Recipient
$8,000 – Fall 2021

Southern Methodist University Distinguished Scholarship
$25,000 per year: 21 Aug. 2017 – 18 May 2019

Southern Methodist University Dedman College Discovery Scholarship
$9,000 per year: 21 Aug. 2017 – 18 May 2019

Southern Methodist University Honor Roll with High Distinction
Fall 2017, Spring 2018, Fall 2018, Spring 2019

Southern Methodist University Summa Cum Laude
May 2019

Valedictorian of Lawrence E. Elkins High School's Class of 2017
June 2017

Academic Decathlon 1st Place Individual and Team (8 Gold Medals)
Spring 2017

PAPERS AND PRESENTATIONS

Bailey, J., Lindquist, W., and Rachev, S. The Impacts of ESG Factors on Average Home Values. *In preparation.*

Bailey, J., Lauria, D., Lindquist, W., Mittnik, S., and Rachev, S. Hedonic Models of Real Estate Prices: GAM Models; Environmental and Sex-Offender-Proximity Factors. Journal of Risk and Financial Management 15(12) 601, 13 December 2022.

Bailey, J. Hedonic Models of Real Estate Prices with ESG Factors. Seminar for Quantitative Finance at Texas Tech University. 28 April 2023.

Bailey, J. ESG in GAM Models for Real Estate Prices. Group Meeting for Quantitative Finance at Texas Tech University. 12 November 2021.

Bailey, J. Early Warning Signals for Real Estate Bubbles. Seminar for Quantitative Finance at Texas Tech University. 2 October 2020.

Bailey, J. Using Parallel Scientific Computing to Identify Polling Errors in the 2016 Presidential Election. Parallel Scientific Computing Meeting at Southern Methodist University. 23 April 2019.

RESEARCH AND TEACHING INTERESTS

With regards to research interests, I have worked on and continue to work on using mathematical, statistical, and computational methods for developing metrics to identify and evaluation political gerrymanders in conjunction with Dr. Leif Ellingson of Texas Tech University.

Additionally, I have worked on and continue to work on topics of mathematical finance with Texas Tech University's Department of Mathematics and Statistics' Quantitative Finance Team, which includes Drs. Lauria, Lindquist, Mittnik, and Rachev and Ph.D. students Abootaleb Shirvani and Yuan Hu. My particular focus with the group has been on using generalized additive models and large-scale data collection to identify the value and predictive power of micro- and macro-economic factors in real estate housing prices, which can additionally be used for pinpointing real estate bubbles. Furthermore, we are working on a grant proposal to the NSF regarding ESG (Environmental, Social, Governance).

With regards to teaching interests, I have greatly enjoyed working as an instructor with the Department of Mathematics and Statistics at Texas Tech University. I have taught or been involved with at least six different courses (refer to course preparation) of which the largest amount of experience comes with MATH 2345. My goal as an instructor is to impart not just knowledge of the topic at hand onto my students but also understanding of it as well. Knowledge of a topic is knowing

when to use a formula or concept to solve a given problem. Understanding of a topic is understanding why you learn it and what you can use it for. Many students nowadays view courses as merely checkboxes to earn their degrees. As an instructor, I have emphasized to my students the "what" it is for and the "why" it is being taught of the topics at hand so that the course becomes more than just a checkbox for them and instead something that they can meaningful use both in and beyond their degree. We owe it to our students to keep them engaged and interested in what they're learning, and that is at the heart of my teaching interests.

LANGUAGES AND COMPUTER SKILLS

English – native language
Spanish – speak, read, and write with solid competence
Coding languages – Java, MATLAB, Python, and R

PROFESSIONAL MEMBERSHIPS

American Mathematical Society, Fall 2020 – Present
Dave Bradlee's National Redistricting Society, Fall 2019 – Present

ATTENDED CONFERENCES

- Conference of Texas Statisticians, 9 October 2021 (Texas Tech University)
- Conference on Modeling in a Heterogeneous World, 20-21 August 2021 (Texas Tech University)
- Texas Geometry and Topology Conference, 24-26 April 2020 (Texas Tech University)
- Workshop on Scientific Computing Meeting Machine Learning and Life Sciences, 7-9 October 2019 (Texas Tech University)
- 2018 Research-to-Practice Conference, 16 February 2018 (Southern Methodist University)