BRILEIGH CATES

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EDUCATION

Doctor of Philosophy (Ph.D.) in Statistics August 2026 - May 2031
University of California, Berkeley Berkeley, CA

Master of Science in Applied Mathematics August 2025 - May 2026
Missouri University of Science and Technology, GPA: 4.00/4.00 Rolla, MO

- Concentration: Statistics
- Thesis: *Analyzing Sleep Architecture and Brain State Transitions via Hidden Markov Models on fMRI Data*
- Thesis Advisors: Nilanjan Chakraborty, Ph.D. and Gayla Olbricht, Ph.D.

Bachelor of Science in Applied Mathematics August 2022 - May 2025
Missouri University of Science and Technology, GPA: 3.968/4.00 Rolla, MO

- Concentration: Statistics

RESEARCH INTERESTS AND TECHNICAL SKILLS

Research Interests	Spatial Statistics, High Dimensional Time Series, Machine Learning, Methodology, Hidden Markov Models, Biological Applications
Technical Skills	R, Python, C++, SQL, RStudio, Quarto, SAS, LaTeX, MatLab

EXPERIENCE

Graduate Research Assistant January 2026 - May 2026
Missouri University of Science and Technology, Department of Mathematics and Statistics
Gayla Olbricht, Ph.D.

· Analyzed sudden and extended-release biomarker model features using pharmacokinetic modeling to evaluate longitudinal patient trajectory outcomes, specifically measuring 5-day and 6-month mortality alongside 3-, 6-, and 12-month Glasgow Outcome Scale-Extended (GOSE) and quality of life (QoLIBRE) scores.
· Demonstrated that multi-day recorded biomarker data provides superior predictive accuracy for clinical endpoints compared to traditional 1-day records.

Graduate Teaching Assistant August 2025 - December 2025
Missouri University of Science and Technology, Department of Mathematics and Statistics
MATH 1120 - College Algebra

· Delivered daily lectures and lab sessions; administered all core instructional content independently while adhering to the curriculum schedule set by the course coordinator.
· Held weekly office hours for homework help and exam preparation.
· Proctored and evaluated all exams.

Summer Institute of Biostatistics and Data Science May 2025 - June 2025
Florida Atlantic University, Biostatistics Collabrative Core

· Collaborated on a team project assessing smoking cessation outcomes across four intervention strategies through logistic and log-binomial regression analyses.
· Delivered project presentations to faculty and peers; participated in career panels, research ethics seminars, and mock interviews with public health professionals.

Student Assistant, Clerical August 2024 - May 2025
Missouri University of Science and Technology, Department of Mathematics and Statistics

· Captioned lecture video recordings to improve accessibility and student learning.
· Graded assignments and exams for undergraduate mathematics and statistics courses.
(i.e. Linear Algebra, Introduction to Probability, Introduction to Biostatistics)

Jr. Statistician May 2024 - July 2024
Bayer, Research & Development

· Analyzed primary and secondary test-level data for pesticides and fungicides to assess efficacy, optimal application rates, and environmental impact.
· Collaborated with chemists and biologists to interpret results and guide research decisions.

RESEARCH CONFERENCES

1. **Brileigh Cates**, Rezwana Rosen Razzaque, Ayoushman Bhattacharya, Muriah Wheelock, Gayla Olbricht, & Nilanjan Chakraborty (2026). *Analyzing Sleep Architecture and Brain State Transitions via Hidden Markov Models on fMRI Data*. Innovations in Design Analysis and Dissemination Conference, Kansas City, MO.

HONORS AND AWARDS

- Valedictorian, *Poplar Bluff High School, GPA: 4.22/4.00* May 2022
- Dean's List (all semesters), *Missouri University of Science and Technology* F22 - SP25
- Adrianne Olin Rall Award for the Unsung Hero, *Tau Beta Sigma* April 2025
- Music Student of the Year, *Arts, Languages, & Philosophy (ALP) Department* May 2025
- Summa Cum Laude, *Missouri University of Science and Technology* May 2025