Garrett J. Kepler

Github | Academic Website | Email

Education

Washington State University (WSU) Fall 2022-Present
Ph.D. in Mathematics
Advisor: Dr. Matthew Hudelson
Topic: Spectral Graph Theory

WSU Fall 2023-Spring 2026
M.S. in Statistics
Advisor: Dr. Daryl DeFord
Topic: Random Sampling & Clustered Networks

California State University - East Bay Spring 2019-Spring 2022
B.S. in Mathematics with Minor in Physics

Teaching Experience

Graduate Teaching Assistant Fall 2022–Present

Instructor of Record:

In the following classes, I was allowed to develop the course. Duties include homework/lecture writing and often included designing the entire curriculum.

- Graph Theory (Math 453) Link to lecture notes
- Combinatorics (Math 325) Link to lecture notes
- Differential Equations (Math 315)
- Mathematical Computing (Math 300) Link to lecture notes
- Calculus III (Math 273)
- Linear Algebra (Math 220)
- Calculus I (Math 171)
- Trigonometry (Math 108)

Teaching Assistant:

In the following classes, the classes were developed for me. Duties included giving coordinator-provided lecture/lab as well as grading homework.

- Calculus II (Math 172)
- Algebra Methods and Introduction to Functions (Math 103 Accelerated & Regular)
- Basic Mathematics (Math 100 Accelerated)

Graduate Tutor Fall 2022–Present

WSU's Math Learning Center offers free tutoring to all currently enrolled students. As a graduate tutor, I am expected to be proficient in every course offered and be able to assist all undergraduate topics. Semester weekly assignments have ranged from 4-8 hours per week.

Private Tutor Fall 2022–Present

I privately tutor both high school and undergraduate students in the Pullman area and beyond. I have mostly focused on Calculus, Data Science, Algebra, and Spanish when tutoring. Averaging 4 hours per week.

Athletics Tutor Fall 2023–Spring 2024

WSU's Athletics Department hosts their own tutoring center specifically for student athletes. I assisted 2-4 students every week with hours ranging from 6-12 hours per week. Topics included both mathematics and statistics.

Research Experience

SLMath Summer Graduate School Summer 2025

I attended a summer school in 2025 funded by the NSF through Simon Laufer Mathematical Sciences Institute and the Fondation Mathématique Jacques Hadamard entitled "*Local Limits of Random Graphs*". This workshop-style program focused on Benjamini-Schramm convergence of graphs and related topics. Each lecture was followed by TA-led discussion sessions accompanied by homework problems. We gained experience in collaboration while working on both closed and open problems random graph theory. Link to program website: SLMath FMJH website.

Research on the Mathematics of the Bay Area (RUMBA) Fall 2020–Spring 2022

Founded by Dr. Andrea Arauza Rivera, RUMBA serves as an opportunity for undergraduates to get hands-on experience in data science and mathematics through Bay-Area focused projects: RUMBA website. The two projects I was involved in focused on inequitable outcomes in high-school standardized testing and census-tract food access differences. The latter resulted in a published paper that can be found here: SIAM URO link.

Graduate Collaborations Fall 2022–Present

In my current Ph.D. program, we are encouraged to collaborate within our department and with other departments as well. I currently have ongoing projects with two fellow mathematics graduate students as well as a chemical engineering student. The projects surround Ramsey Theory, eigenvectors of graphs, spectral-based redistricting methods, and applications of machine learning in catalysis respectively. Past project collaborations have been in inverse eigenvalue problems, data science, statistics, and computer science (see below).

Papers

Kepler, Garrett (2026). "Some Spectral Properties of the B_α Matrix of a Graph". In: *Submitted*. arXiv: 2607.25221. url: https://arxiv.org/pdf/2607.25221

Briscoe, Jarren, Daryl Deford, Assefew Gebremedhin, and Garrett Kepler (May 2025). "Algorithmic Accountability in Small Data: Sample-Size-Induced Bias Within Classification Metrics". In: *AISTATS*. URL: https://proceedings.mlr.press/v258/briscoe25a.html

Brannan, Jared J. L., Benjamin J. Clark, and Garrett J. Kepler (2024). "Properties of the cone of polynomials of fixed degree that preserve nonnegative matrices". In: *Submitted*. arXiv: 2402.04508. url: https://arxiv.org/pdf/2402.04508.

Kepler, Garrett, Maria Palomino, and Andrea Arauza Rivera (Mar. 2023). "Food Deserts and k-Means Clustering". In: *SIURO 16*. url: https://www.siam.org/media/bl2p3oyy/s150444.pdf.

Academic Community Involvement

Organization

- Co-organizer for Linear Algebra, Discrete Math, & Number Theory Seminar — Fall 2025–Present
- WNAR of IBS session chair for "*Clinical Trials & Drug Development*" session — Summer 2026

Conference Talks & Colloquia

- WNAR of IBS conference talk "*A Machine Learning Approach to Catalysis Modeling*" — Summer 2026
- Graduate Outreach in Physics Colloquium "*A Science Chit Chat by a Mathematician*" — Spring 2026
- Joint Math Meeting conference talk "*Eigenspaces of Graphs and their Utility*" — Spring 2025
- Cal State East Bay Math Colloquium "*Graph Theory and Gerrymandering: Computationally Assessing Fairness*" — Spring 2025
- Western Canadian Linear Algebra Meeting conference talk "*Independent Sets and - Graph Energy*" — Summer 2024

Seminar Talks

All of the following took place at WSU's Linear Algebra, Discrete Math, & Number Theory Seminar:

- "*When Graphs Share Eigenvectors*" — Fall 2026
- "*Graphgebrability & Mathematical Exploration*" — Spring 2026
- "*A Look into Limits of Random Graphs*" — Fall 2025
- "*A Probabilistic Excursion in Spectral Graph Theory*" — Spring 2025
- "*Laplace, Fiedler, & Markov: A Graph Reconstruction Problem*" — Fall 2024
- "*Graphical Inginuety: Spectral Solutions to Combinatorial Conondrums*" — Spring 2024

Guest Lectures

All of the invited guest lectures I gave at WSU:

- Graph Theory (Math 453) "*At the Intersection of Graph Theory & Probability Theory*" — Spring 2026
- Mathematical Snapshots (Math 398) "*A Random Talk on Random Walks*" — Spring 2026
- Graph Theory (Math 453) "*Applications in and Methods of Spectral Graph Theory*" — Fall 2025
- Advanced Linear Algebra (Math 420) "*MCMC: An Introduction*" — Fall 2025
- Mathematical Snapshots (Math 398) "*Graph Theory Applications: Gerrymandering*" — Spring 2025

Mentoring

STEM SSS R&MP Research Mentoring Program — Fall 2026–Present

Recently, I have been onboarded as a mentor under WSU's R&MP program that provides mentorship from senior graduate students and early faculty to undergraduate researchers. I am paired with an undergraduate researcher interested in modeling the affect Alzheimer's has on the brain: R&MP website.

Undergraduate Research Project Mentoring — Spring 2026–Present

Working with an undergraduate student, we are getting him experience in social choice theory and data analysis with the end goal of a conference poster presentation. We are attempting to model local elections in Nevada with low voter turnout. Specifically, we aim to determine modeling techniques that can be used

even when situations are not ideal. He will report his findings in a presentation at WSU's undergraduate poster showcase: SURCA website.

American Women in Mathematics (AWM) Mentoring Program Fall 2025–Spring 2026

WSU's AWM chapter started a mentoring program in August 2025. Pairing graduate students with undergraduate students, we aim to demystify collegiate, research, and industry experiences as well as expose undergraduate students to opportunities they might otherwise miss. My mentee and I met regularly to discuss these topics over coffee from August 2025 on.

High School Project Mentoring Fall 2024–Fall 2025

A fellow graduate student and I mentored a proactive high school mathematician in research. He was interested mostly in the applications of graph theory. We guided him into proving fun theorems and creating a write-up of interesting application areas.

Awards

Nancy J Robertson Endowed Graduate Fellowship in Mathematics Summer 2026

Granted to two WSU graduate students in the Math and Stat Department each year

High Achievement in Mathematics Research & Collaboration Spring 2022

Awarded to two Cal State East Bay undergraduate students who exemplify research-oriented achievements in mathematics

Teaching Information

At WSU, student evaluations are processed through Explorance Blue: link here. For student privacy purposes, this platform does not report student feedback when too little feedback is given. All courses with "Rating: Threshold not met" are when this occurred.

Course Information as **Instructor of Record**				
Course Name	Course Number	Semester	# Students	Instructor Rating
Graph Theory	Math 453	Fall 2026	72	In progress
Combinatorics	Math 325	Spring 2026	19	4.9/5
Differential Equations	Math 315	Fall 2025	41	4.8/5
Mathematical Computing	Math 300	Summer 2026	12	Threshold not met
Calculus III	Math 273	Summer 2023	13	4.3/5
Linear Algebra	Math 220	Spring 2024	87	4.5/5
Calculus I Online	Math 171	Summer 2024	37	2.3/5
Trigonometry	Math 108	Summer 2025	39	Threshold not met
Basic Mathematics	Math 100 (Accelerated)	Spring 2025	60	5/5

Course Information as **Teaching Assistant**				
Course Name	Course Number	Semester	# Students	Instructor Rating
Calculus II	Math 172	Spring 2023	33	Threshold not met
Algebra Methods	Math 103	Fall 2024	36	4.6/5
		Fall 2023	36	4.4/5
		Fall 2022	36	4.6/5
	Math 103 (Accelerated)	Spring 2025	24	4.6/5

Last updated: October 23, 2026