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Nathaniel Hurst

Curriculum Vitae

Education

2023–Present **B.Sc. in Mathematics**, *University of California, Santa Barbara*
GPA: 3.96/4.0. Honors Program/Dean's Honors.

Experience

2025–Present **Mathematics Tutor**, *UC Santa Barbara*, Santa Barbara, CA
- Led tutorial sessions alongside undergraduate courses including Linear Algebra, Calculus, and Differential Equations. Hosted drop-in homework help for students.
- Developed skills in interpersonal connection, time management, and teaching.

Projects

2025 **Pre-Arizona Winter School 2025**, *University of Arizona (Online)*
- Studied mathematical cryptography and learned to use computational tools such as SageMath. Implemented toy cryptosystems and attacks against them, ranging from the Discrete Logarithm program to Elliptic Curve and Isogeny based cryptography.

2025 **Directed Reading Program**, *UCSB Math Department*
- Studied Algebraic Geometry under the mentorship of a professor. Focused on the Quillen-Suslin Theorem, studying the relationship between algebraic vector bundles over affine space and finitely generated projective modules.
- Produced and presented this write-up and this poster.

2024 **Research Assistantship**, *UCSB Econ Department*
- Researched the interactions between misinformation and counter-protocols, including Twitter Community Notes. Curated and investigated databases including information from 1M+ tweets. Developed skills in data visualization and research presentation.

Skills

Programming Python, R
Tools Git, SageMath

Languages

English Native
Hebrew Learning
German Learning

Interests

Academic Mathematical Cryptography, Numerical Analysis, Algebraic Number Theory
Hobbies Hiking, Climbing, Chess