

CURRICULUM VITAE

Elijah Guptill

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EDUCATION

California Polytechnic State University

M.S. in Mathematics

- Advised by Ryan Tully-Doyle

September 2021 – Expected June 2026

GPA : 3.9/4.0

B.S. in Mathematics

- Senior Project: *Topological Data Analysis for Scoring the Periodicity of Northward/Southward Currents*, advised by Elena Dimitrova

GPA : 3.9/4.0

PREPRINTS AND PUBLICATIONS

Preprints

- [1] **2024** (with Eric Brussel, Madeleine Goertz, and Kelly Lyle). “The Moduli Stack of Triangles”. In: (preprint/in review). arXiv: 2408.07792 [math.AG]. URL: <https://arxiv.org/abs/2408.07792>.

Other Manuscripts

- [2] **2025**. “Continuity of Mapping Evaluations of Function Sequences to Lexicographic Orders Measuring Repetition”. In: (manuscript).
- [3] **2024** (with Gregory Leathrum, Daniel Sebo, and Sean Watson). “General Counting Method For Aid In Computing The Distance Zeta Function On Modified Sierpinski Carpets”. In: (manuscript).

CONFERENCE PRESENTATIONS

Research Talks

- [4] **May 4, 2025** (with Jade Leathrum, Daniel Sebo, and Sean Watson). “General Counting Method For Aid In Computing The Distance Zeta Function On Modified Sierpiński Carpets”. (Special Session on Fractal Geometry and Complex Dynamics III). American Mathematical Society Spring Western Sectional Meeting. San Luis Obispo, CA.

Poster Presentations

- [5] **Oct. 17, 2025**. “Computation of Legendrian Contact Homology”. Mathematics Department Summer Research Symposium. San Luis Obispo, CA.
- [6] **May 3, 2025**. “Topology of Sequences up to the Indices of Repeated Elements”. (Special Session on California Polytechnic State University Poster Session: Mathematical Explorations Across All Disciplines I). American Mathematical Society Spring Western Sectional Meeting. San Luis Obispo, CA.
- [7] **Jan. 10, 2025**. “Topology of Sequences up to the Indices of Repeated Elements”. (PME Undergraduate Student Poster Session). Joint Mathematics Meetings. Seattle, WA.
- [8] **Oct. 18, 2024**. “Topology of Sequences up to the Indices of Elements”. Mathematics Department Summer Research Symposium. San Luis Obispo, CA.
- [9] **May 17, 2024** (with Eric Brussel, Madeleine Goertz, and Kelly Lyle). “Three Moduli Spaces of Triangles”. Bailey College of Science and Mathematics Student Research Conference. San Luis Obispo, CA.
- [10] **Oct. 20, 2023** (with Eric Brussel, Madeleine Goertz, and Kelly Lyle). “Three Moduli Spaces of Triangles”. Mathematics Department Summer Research Symposium. San Luis Obispo, CA.
- [11] **May 1, 2023** (with Jade Leathrum, Daniel Sebo, and Sean Watson). “A Hundred and One Arabian Carpets”. Bailey College of Science and Mathematics Student Research Conference. San Luis Obispo, CA.
- [12] **Feb. 25, 2023** (with Jade Leathrum, Daniel Sebo, and Sean Watson). “A Hundred and One Arabian Carpets”. (Contributed Poster Session). Mathematical Association of America Golden Section Annual Meeting. Santa Rosa, CA.
- [13] **Oct. 14, 2022** (with Jade Leathrum, Daniel Sebo, and Sean Watson). “A Hundred and One Arabian Carpets”. Mathematics Department Summer Research Symposium. San Luis Obispo, CA.

RESEARCH PROJECTS

Frost Research Scholarship | Cal Poly

- Advised by Ryan Tully-Doyle, on *Continuity of Mapping Evaluations of Function Sequences to Lexicographic Orders Measuring Repetition*

September 2023 - June 2025

Frost Summer Research Program | Cal Poly

- Advised by Austin Christian, on computation of Legendrian contact homology in Mathematica
- contributed 17 linearized LCH computations to LSU’s Legendrian Knot Atlas

June 2025 - August 2025

Frost Summer Undergraduate Research Program | Cal Poly

- Advised by Ryan Tully-Doyle, on the topology of sequences up to the indices of repeated elements

June 2024 - August 2024

Frost Summer Undergraduate Research Program | Cal Poly

- Advised by Eric Brussel, on moduli spaces of triangles

June 2023 - August 2023

Frost Summer Undergraduate Research Program | Cal Poly

- Advised by Sean Watson, on *General Counting Method For Aid In Computing The Distance Zeta Function On Modified Sierpinski Carpets*

June 2022 - August 2022

AWARDS AND SCHOLARSHIPS

Frost Summer Research Scholarship | *Cal Poly Bailey College*
Frost Research Scholarship | *Cal Poly Bailey College*
Edward Van Duyne | *Cal Poly Math Dept.*
Kenneth Forsen | *Cal Poly Math Dept.*
L&R Renihan Math Scholarship | *Cal Poly Math Dept.*

June - Aug. 2022 & 2023 & 2024 & 2025
Sept. 2023 - June 2025
Sept. 2023 & Sept. 2025
Sept. 2024
Sept. 2024

TEACHING EXPERIENCE

Graduate Teaching Associate | *Cal Poly Mathematics Dept.*
– MATH 118 - Precalculus Algebra: Spring 2025, Fall 2025
Mathematics Tutor | *Cal Poly Learning Support Center*

June 2025 - present
September 2024 - April 2025

SKILLS

Programming | *Python, Mathematica*