

# CURRICULUM VITAE

## Elijah Guptill

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### EDUCATION

#### California Polytechnic State University

September 2021 – Expected June 2026

*M.S. in Mathematics*

GPA : 3.9/4.0

– Advised by Ryan Tully-Doyle

*B.S. in Mathematics*

GPA : 3.9/4.0

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

### 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*

September 2023 - June 2025

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

Frost Summer Research Program | *Cal Poly*

June 2025 - August 2025

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

Frost Summer Undergraduate Research Program | *Cal Poly*

June 2024 - August 2024

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

Frost Summer Undergraduate Research Program | *Cal Poly*

June 2023 - August 2023

– Advised by Eric Brussel, on moduli spaces of triangles

Frost Summer Undergraduate Research Program | *Cal Poly*

June 2022 - August 2022

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

AWARDS AND SCHOLARSHIPS

<b>Frost Summer Research Scholarship</b>   <i>Cal Pol Bailey College</i>	June - Aug. 2022 & 2023 & 2024 & 2025
<b>Frost Research Scholarship</b>   <i>Cal Poly Bailey College</i>	Sept. 2023 - June 2025
<b>Edward Van Duyne</b>   <i>Cal Poly Math Dept.</i>	Sept. 2023 & Sept. 2025
<b>Kenneth Forsen</b>   <i>Cal Poly Math Dept.</i>	Sept. 2024
<b>L&amp;R Renihan Math Scholarship</b>   <i>Cal Poly Math Dept.</i>	Sept. 2024

TEACHING EXPERIENCE

Graduate Teaching Associate   <i>Cal Poly Mathematics Dept.</i>	June 2025 - present
– MATH 118 - Precalculus Algebra: Spring 2025, Fall 2025	
Mathematics Tutor   <i>Cal Poly Learning Support Center</i>	September 2024 - April 2025

SKILLS

Programming   <i>Python, Mathematica</i>	
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