

# Ellis Buckminster

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## EDUCATION

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<b>University of Pennsylvania</b> Ph.D. Candidate in Mathematics — Thesis advisor: Samuel Taylor	Philadelphia, PA 2022–current
<b>Swarthmore College</b> B.A. in Mathematics, minor in Linguistics	Swarthmore, PA 2018–2022

## RESEARCH INTERESTS

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Foliations on 3-manifolds, Anosov and pseudo-Anosov flows, endperiodic maps, mapping class groups, and hyperbolic 3-manifolds.

## PAPERS AND PUBLICATIONS

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Research publications and preprints

- *Periodic points of endperiodic maps*. 2025. 16 pages. Available at [arXiv:2409.05963](https://arxiv.org/abs/2409.05963). Published online first in *Groups, Geometry, and Dynamics*.
- Appendix to *Littlewood–Richardson rules from quivers for two-step flag varieties*. Joint with L. Chen and E. Kalashnikov. 2025. 4 pages. Available at [arXiv:2502.15126](https://arxiv.org/abs/2502.15126).
- *Domains of Convergence for Polyhedral Packings*. Joint with N. Ahmed, W. Ball, E. Rivkin, D. Torrance, J. Viscusi, R. Wang, I. Whitehead, and S. Yang. 2021. 26 pages. Available at [arXiv:2109.01289](https://arxiv.org/abs/2109.01289).

## FELLOWSHIPS AND AWARDS

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Academic and research

- Simons Dissertation Fellowship in Mathematics  
*Simons Foundation* 2025–2027
- Benjamin Franklin Fellowship  
*University of Pennsylvania* 2022–2027

Teaching and pedagogy

- Master TA  
*University of Pennsylvania, Mathematics Department* 2024–current
- Good Teaching Award, Math 5020  
*University of Pennsylvania, Mathematics Department* Fall 2023

## TEACHING EXPERIENCE

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The University of Pennsylvania	Philadelphia, PA
<b>Teaching Assistant</b>	
<i>Math 1070: Mathematics of Change</i>	Fall 2024
<i>Math 2400: Calculus Part III</i>	Spring 2024
<i>Math 5020: Graduate Algebra</i>	Fall 2023
<b>Grader</b>	
<i>Math 6090: Graduate Analysis</i>	Spring 2025
Swarthmore College	Swarthmore, PA
<b>Mathematics Clinician</b>	Fall 2021
<i>Drop-in help for students in any math course</i>	
<b>Teaching Assistant</b>	Fall 2020
<i>Linguistics 045: Phonetics and Phonology</i>	

## OTHER EXPERIENCE AND SERVICE

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### Seminar and conference organization

- **GTA: Philadelphia** at Temple University Fall 2023–Summer 2025  
GTA: Philadelphia 2024, 9th annual Graduate Student Conference in Algebra, Geometry, and Topology  
*co-organizer with A. Clickard, D. Futer, R. Griebenow, J. Lang, A. Smith, M. Stover, and A. Sudarshan*  
GTA: Philadelphia 2025, 10th annual Graduate Student Conference in Algebra, Geometry, and Topology  
*co-organizer with A. Clickard, D. Futer, C. Kondasinghe, J. Lang, S. Liu, A. Pasles, A. Sarma Phukon, A. Smith, and M. Stover*
- **Graduate Geometry/Topology Seminar** at the University of Pennsylvania, Fall 2023–Spring 2024  
*co-organizer with F. Espino*
- **Interactive Mathematics Colloquia** at Swarthmore College Fall 2021–Spring 2022  
*co-founder and co-organizer with N. Ahmed and J. Zhang*

### Community building, outreach, and mentorship

- **Directed Reading Program** at the University of Pennsylvania, Fall 2025–current  
*co-organizer with N. Borisov and V. Gonzalez Bosca, and mentor for the following projects:*
  - Sophia Sczcepek, *The Shape of Space* Spring 2024
  - Angela Cai, *A Primer on Mapping Class Groups* Fall 2024
  - Daphne Glatte, *Wallpaper groups* Spring 2025
  - Darren Zheng, *A Primer on Mapping Class Groups* Spring 2025
- **Gender Minorities in Math** at the University of Pennsylvania, Fall 2024–current  
*coordinator with M. Calle and A. Mock*
- **Penn Emerging Scholars Program** graduate student organizer Fall 2024–current

## WORKSHOPS

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- **CMO Workshop** at the Casa Matemática Oaxaca June 2025  
Invited participant in “Blooming Beasts: A Conference on the Geometry, Topology, and Dynamics of Infinite-Type Surfaces” Oaxaca, Mexico
- **Foliations on 3-manifolds** January 2025

Log cabin workshop	St George, UT
• <b>Topology Students Workshop</b>	June 2024
at Vanderbilt University	Nashville, TN

## TALKS AND PRESENTATIONS

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### Research conference Talks

CMO Workshop: Blooming Beasts	Oaxaca, Mexico
<i>Periodic points of endperiodic maps</i>	June 2025
Recent Development in Geometric Group Theory	Knoxville, TN
<i>Universal circles for Anosov flows</i> (lightning talk)	May 2025
AMS Spring Western Sectional Meeting: Huge Groups from a Geometric Viewpoint	San Luis Obispo, CA
<i>Periodic points of endperiodic maps</i>	May 2025

### Seminar Talks

Temple Junior Groups, Geometry, and Topology Seminar	Philadelphia, PA
<i>Universal circles for Anosov foliations</i>	September 2025
Temple Geometry and Topology Seminar	Philadelphia, PA
<i>Periodic points of endperiodic maps</i>	January 2025

### Expository Talks

Temple Junior Groups, Geometry, and Topology Seminar	Philadelphia, PA
<i>Universal circles from pseudo-Anosov flows</i>	February 2025
Foliations on 3-manifolds log cabin workshop	St George, UT
<i>Fibered faces of the Thurston norm unit ball</i>	January 2025
Penn Graduate Geometry/Topology Seminar	Philadelphia, PA
<i>Hyperbolic geometry and homeomorphisms of surfaces</i>	March 2024
<i>The Milnor–Schwarz Lemma</i>	September 2023
Penn Graduate Pizza Seminar	Philadelphia, PA
<i>A trip to the <math>SL_2(\mathbb{Z})</math></i>	November 2024
<i>Mapping class groups</i>	April 2023
Temple Graduate Pizza Seminar	Philadelphia, PA
<i>A trip to the <math>SL_2(\mathbb{Z})</math></i>	December 2024

### Talks for Undergraduates

Penn Directed Reading Program Mentor Talks	Philadelphia, PA
<i>A two-sided Möbius band</i> (short talk)	April 2025