

Ellis Buckminster

Pronouns: they/them
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EDUCATION

University of Pennsylvania

Ph.D. Candidate in Mathematics

— Thesis advisor: Samuel J. Taylor

Philadelphia, PA

expected Spring 2027

Swarthmore College

B.A. in Mathematics, minor in Linguistics

Swarthmore, PA

received May 2022

RESEARCH INTERESTS

Low-dimensional topology, geometry and dynamics, in particular flows and foliations on 3-manifolds.

PAPERS AND PUBLICATIONS

Research publications and preprints

- *Foliations forcing closed orbits*. Joint with Audrey Rosevear. 2026. In preparation.
- *Cannon–Thurston maps for Anosov foliations*. 2026. 38 pages. Available at [arXiv:2604.21201](https://arxiv.org/abs/2604.21201).
- *Universal circles for Anosov foliations*. Joint with Samuel J. Taylor. 2025. 40 pages. Available at [arXiv:2512.10107](https://arxiv.org/abs/2512.10107).
- *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

Academic and research

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

Teaching and pedagogy

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

TEACHING EXPERIENCE

The University of Pennsylvania

Philadelphia, PA

Lead Teaching Assistant

Math 1400: Calculus, Part I

Fall 2026

Teaching Assistant

Math 1070: Mathematics of Change

Fall 2024

Math 2400: Calculus Part III

Spring 2024

Math 5020: Graduate Algebra

Fall 2023

Grader

Math 6090: Graduate Analysis

Spring 2025

Swarthmore College

Swarthmore, PA

Mathematics Clinician

Drop-in help for students in any math course

Fall 2021

Teaching Assistant

Linguistics 045: Phonetics and Phonology

Fall 2020

OTHER EXPERIENCE AND SERVICE

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–Fall 2025

WORKSHOPS

- **Oberwolfach Workshop**
Invited participant in “Low Dimensional Topology”
July 2026
Oberwolfach, Germany
- **CMO Workshop** at the Casa Matemática Oaxaca
Invited participant in “Blooming Beasts: A Conference on the Geometry, Topology, and Dynamics of Infinite-Type Surfaces”
June 2025
Oaxaca, Mexico
- **Foliations on 3-manifolds**
Log cabin workshop
January 2025
St George, UT
- **Topology Students Workshop**
at Vanderbilt University
June 2024
Nashville, TN

INVITED TALKS

Research Conference Talks

- JMM special session: Geometric topology in low-dimensions
TBD
Chicago, IL
January 2027
- Oberwolfach Workshop: Low-dimensional Topology
Foliations forcing closed orbits
Oberwolfach, Germany
July 2026
- AMS Fall Central Sectional Meeting: Topology and Group Actions
Universal circles for Anosov foliations
St. Louis, MO
October 2025
- CMO Workshop: Blooming Beasts
Periodic points of endperiodic maps
Oaxaca, Mexico
June 2025
- AMS Spring Western Sectional Meeting: Huge Groups from a Geometric Viewpoint
Periodic points of endperiodic maps
San Luis Obispo, CA
May 2025

Seminar Talks

- Univeristy of Wisconsin, Madison Dynamics RTG Seminar
TBD
Madison, WI
October 2026
- MPI MiS Geometry Seminar
Foliations forcing closed orbits
Leipzig, Germany
July 2026
- SLMath Topological and Geometric Structures Seminar
Cannon–Thurston maps for Anosov foliations
Berkeley, CA
April 2026
- University of Chicago No Boundaries/Geometry & Topology Seminar
Cannon–Thurston maps for Anosov foliations
Chicago, IL
April 2026
- Temple Geometry and Topology Seminar
Universal circles for Anosov foliations
Philadelphia, PA
November 2025
- Periodic points of endperiodic maps*
January 2025
- Penn Foliations Workshop
Universal circles for Anosov foliations
Online
October 2025

Expository Talks

- CSU Chico Math Colloquium
Sphere-filling curves via 3-manifolds
Chico, CA
May 2026
- Binghamton University Math Graduate Student Seminar
Flows, foliations, and actions on circles
Online
March 2026

From Surface Topology to Fermat's Last Theorem
The Nielsen–Thurston classification of surface homeomorphisms
Foliations on 3-manifolds log cabin workshop
Fibered faces of the Thurston norm unit ball

Philadelphia, PA
November 2025
St George, UT
January 2025

Talks for Undergraduates

Penn Directed Reading Program Mentor Talks
A two-sided Möbius band (short talk)

Philadelphia, PA
April 2025