

# Porter Morgan

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## Education

2020-Present **University of Massachusetts Amherst**

- Ph.D. student in Mathematics
- Advisor: Inanc Baykur
- Expected graduation May 2026
- GPA: 3.97

2014-18 **Kenyon College**

- B.A. in Mathematics and Classics
- GPA: 3.63

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## Awards

2024 Richard Elis Memorial Prize

2020 and 2022 Mathematics fellowship, University of Massachusetts Amherst

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## Papers and preprints

2. **Geography of irreducible 4-manifolds with order two fundamental group**, with Mihail Arabadji. *Preprint* (2025). [\[PDF\]](#)
1. **Belted sum decompositions of fully augmented links**, with Brian Random, Dean Spyropoulos, Rolland Trapp, and Cameron Ziegler. *New York J. Math*, 31 (2025):1-42, 2024. [\[PDF\]](#)

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## Talks

February 2025 Geometry and Topology Seminar at Louisiana State University.  
*Irreducible 4-manifolds with order two fundamental group (technical talk)*  
*Obtaining exotic 4-manifolds through torus surgery (introductory talk)*

July 2024 Braids reunion workshop, hosted by ICERM.  
*Nonorientable Broken Lefschetz Fibrations.*

June 2024 Topology Student Workshop at Vanderbilt University.  
*Nonorientable Broken Lefschetz Fibrations.*

May 2024 Georgia Topology Conference at University of Georgia (lightning talk).  
*Indefinite folds: a case study.*

March 2024 New England Algebraic Topology and Mathematical Physics Seminar at Amherst College.  
*Nonorientable Broken Lefschetz Fibrations.*

March 2024 Undergraduate math club at University of Massachusetts Amherst.

*What's Calc III got to do with it?*

- February 2024 Reading seminar on automorphism groups of manifolds at University of Massachusetts Amherst.  
*Crash course on hyperbolic geometry in dimension two.*
- February 2024 Geometric Topology Grad and Postdoc Seminar, on zoom.  
*Nonorientable Broken Lefschetz Fibrations.*
- November 2023 Reading seminar on automorphism groups of manifolds at University of Massachusetts Amherst.  
*Extendable diffeomorphisms in the 4-sphere.*
- September 2023 Undergraduate math club at University of Massachusetts Amherst.  
*Getting a handle on manifolds.*
- July 2023 Graduate Student Geometry and Topology Conference, hosted by Harvard, on zoom.  
*Constructing Kirby diagrams of (broken) Lefschetz fibrations in the non-orientable case.*
- February 2023 Math department lunch seminar at Smith College.  
*An overview of the foundations of manifold theory.*
- November 2023 Topological quantum field theory learning seminar.  
*Bicategories and monoidal bicategories.*
- October 2023 Topological quantum field theory learning seminar.  
*Dualizable objects, 1-dimensional TQFTs and cobordism hypothesis.*
- March 2022 Floer homotopy theory reading seminar.  
*Classification of vector bundles.*

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## Teaching

*University of Massachusetts Amherst: teaching assistant*

- Winter and summer terms, 2023-4 Differential Equations
- Spring 2024 Mathematical Computing (Python-based course)
- Summer 2023 Linear Algebra
- Spring & Fall terms, 2020-2023 Calculus II and Calculus II honors

*University of Massachusetts Amherst: grader*

- Spring 2024 and 2025 Graduate level Algebraic Topology

Spring 2025 Abstract Algebra II

Spring 2025 Complex Variables

Fall 2024 Graduate level Point Set Topology

Fall 2024 Graduate level Topological Data Analysis

Fall 2024 Mathematical Modeling

Fall 2024 Calculus III

Fall 2023 Knot Theory

*University of Michigan*

Summer 2023 Calculus I instructor at summer connections program, hosted by Ross School of Business

*White Mountain School, Bethlehem NH*

2018-2020 High school AP Calculus teacher

2018-2020 High school Precalculus teacher

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**Service**

2023-4 and 2024-5 school years Co-chair of Graduate Student Action Committee, University of Massachusetts Amherst math department

2023-5 Referee, *Algebraic & Geometric Topology*

2023-4 school year Organizer for reading seminar on automorphism groups of manifolds, University of Massachusetts Amherst

2023-4 school year Organizer of Undergraduate Math Club, University of Massachusetts Amherst

February 2024 Judge for Hack(h)er codeathon competition at University of Massachusetts Amherst

Fall 2023 Mentor for directed reading program in point set topology, University of Massachusetts Amherst

November 2023 Graduate student panelist Q&A session hosted by Society of Industrial and Applied Math

September 2023 Graduate student panelist at WIMIN conference, hosted by Smith College

Winter 2023 Teaching assistant for math course at Hampshire County Jail in Northampton, MA

2021-2 Recruitment committee for Graduate Student Action Committee, University of Massachusetts Amherst math department

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### **Other conferences and workshops attended**

January 2025 Foliations on 3-manifolds: log cabin workshop in St George, UT

May 2024 Georgia Topology Summer School at the University of Georgia