

CONTACT *Email:* benadenbaummath@gmail.com  
INFORMATION *ORCID:* 0009-0009-5694-2981  
*Website:* <https://badenbaum.github.io/>  
Last Updated: September 13, 2025

## Education

**Dartmouth College**, Hanover, NH Sep 2019 - June 2024  
- Ph.D., Mathematics  
- Thesis Advisor: Sergi Elizalde  
**Lafayette College**, Easton, PA Sep 2015- May 2019  
- B.S. Mathematics with Honors  
- Minor Computer Science

## Employment

**Villanova University**, Villanova, PA August 2025-Present  
- Visiting Assistant Teaching Professor, Department of Mathematics and Statistics  
**Florida Gulf Coast University**, Fort Myers, FL August 2024 - May 2025  
- Visiting Assistant Professor, Department of Mathematics

## Papers

### Publications

4. *Counting Boolean intervals in the weak Bruhat order of a finite Coxeter group* (with J. Elder, P. E. Harris, J. C. Martínez Mori) <https://doi.org/10.47443/dml.2024.163> *Discrete Math. Lett.* 15 (2025) 52-59
3. *On the Order of P-Strict Promotion on  $V \times [\ell]$*  <https://doi.org/10.37236/13044> *Electron. J. Combin.* 32(2) (2025) #P2.8
2. *Coloring Groups* (with A. Wilson) *Discrete Math & Theoretical Computer Science* vol. 26:2 (2024) <https://doi.org/10.46298/dmtcs.12753>
1. *Rowmotion on 321-avoiding permutations* (with S. Elizalde) *Electron. J. Combin.* 30(3) (2023) #P3.5 <https://doi.org/10.37236/11792>

### Preprints and In Preparation

- Parking Cascades: From the simplest sequence to Motzkin and Catalan (with J. Elder, P. E. Harris, M. Lynch, J. C. Martínez Mori) (submitted)
- *Dimensions of toggleability spaces* (with S. Daugherty, N. Mayers) <https://doi.org/10.48550/arXiv.2508.14974> (submitted)
- *Maximal Tubings of the Cycle Graph* (with E. Barnard, R. Garcia, M. Hlavacek, B. Kagy, N. Lesnevich, G. Nasr, K. Ormeño K. Waddle) in preparation

## Presentations

### Invited Research Presentations

- “Pattern avoiding Parking Functions” *Special Session on Permutation Patterns* at Joint Math Meetings January 2026 (Upcoming)
- “On the Toggleability Spaces of Diagrams” *AMS Special Session on Dynamical Algebraic Combinatorics* at AMS Spring Eastern Sectional April 2025
- “On the Order of P-Strict Promotion on  $V \times [\ell]$ ” *AMS Special Session on Enumerative and Dynamical Combinatorics* at AMS Spring Southeastern Sectional March 2025
- “Avoiding a Single Pattern in the Bruhat Order”, *AMS Special Session on Permutation Patterns* at AMS Fall Eastern Sectional October 2024
- “Rowmotion on 321-Avoiding Permutations”, *AMS Special Session on Algebraic and Bijective Methods in Permutation Enumeration* at Joint Math Meetings April 2022

### Contributed Research Presentations

- “Avoiding a Single Pattern in the Bruhat Order” (Poster), *Permutation Patterns* July 2025
- “Boolean intervals in the weak Bruhat order of a finite Coxeter group” *Graduate Student Combinatorics Conference* March 2024
- “Coloring Groups” (Poster), *Combinatorial Algebra meets Algebraic Combinatorics* January 2024
- “Rowmotion on 321-Avoiding Permutations” (Poster), *Formal Power Series and Algebraic Combinatorics* July 2023
- “Rowmotion on 321-Avoiding Permutations”, *Permutation Patterns* July 2023
- “On the Order of P-Strict Promotion on  $V \times [\ell]$ ”, *Graduate Student Combinatorics Conference* March 2023

### Seminar Talks

Drexel University (CAGE seminar)	May 2025
University of Florida	April 2025
Kennesaw State University	April 2025
University of Wisconsin – Milwaukee	April 2024
Graduate Online Combinatorics Colloquium	November 2023
LACIM at Université du Québec à Montréal	November 2023
Michigan State University	November 2023
North Dakota State University	November 2023
Dartmouth College	May 2022
University of Vermont	April 2022

## Other Conferences and Workshops Attended

- BIRS 5-Day Workshop on Lattice Theory January 2025

- Collaborate @ ICERM January 2025
- AMS MRC in Algebraic Combinatorics June 2024
- Richard Stanley 80th Birthday Conference June 2024
- ALCOVR Workshop in Dynamical Algebraic Combinatorics May 2024
- AMS Spring Eastern Sectional April 2024
- 48th Annual New York State Regional Graduate Mathematics Conference April 2023
- Permutation Patterns June 2022
- BIRS 5-Day Workshop on Dynamical Algebraic Combinatorics (Virtual) November 2021
- Permutation Patterns (Virtual) April 2021

## Teaching

### **Instructor** *Villanova University*

- MAT 1320 Calculus 1 for Liberal Arts Majors Fall 2025
- MAT 1500 Calculus 1 (2 Sections) Fall 2025

### **Instructor** *Florida Gulf Coast University*

- MAT 1033 Intermediate Algebra (2 Sections) Fall 2024
- MAC 1147 Precalculus Fall 2024
- MAC 2233 Elementary Calculus 1 (2 Sections) Spring 2025
- MAS 3105 Linear Algebra Spring 2025

### **Instructor** *Dartmouth College*

- Math 3 Introduction to Calculus Fall 2021
- Math 9 Multivariable Calculus with Linear Algebra Fall 2022
- Math 28 Introduction to Combinatorics Winter 2024

### **Teaching Assistant**, *Dartmouth College*

- Math 8 Calculus of Functions of one and Several Variables Fall 2019
- Math 10 Introductory Statistics Spring 2020 online over Zoom
- Math 108 Topics in Combinatorics Fall 2020 online over Zoom
- Math 3 Introduction to Calculus Winter 2021 online over Zoom
- Math 28 Introduction to Combinatorics Winter 2023

## Service and Outreach

- Dartmouth Combinatorics Seminar Co-organizer Fall 2022-Spring 2024
- Dartmouth College *Directed Reading Program* Co-organizer Winter 2023-Winter 2024
- Florida Gulf Coast University Colloquium Committee August 2024 - May 2025
- Florida Gulf Coast University ASPIRE Committee August 2024 - May 2025

### **Referee For**

Electronic Journal of Combinatorics (x2), European Journal of Combinatorics