

Penelope Beall

as of July 26th, 2025
pbeall@ucdavis.edu
pbeall.github.io

Education

Sep 2025– **University of California, Davis**
Pursuing Mathematics PhD

Aug 2021– **University of Florida**
May 2025 BS in Mathematics

Projects

31 Oct 2024– Experimental Topology Research Group
May 2025 performed collaborative research on Vietors-Rips complexes under the supervision of Prof. H. Adams at the University of Florida

19 Oct– SCUDEM IX 2024
12 Nov 2024 worked in a team of 3 to solve a modeling problem using differential equations, received the Meritous Award

17 June– Polymath Jr. Research Program
11 Aug 2024 performed collaborative research on Macaulay Rings and Posets under the supervision of Prof. A. Seceleanu from the University of Nebraska-Lincoln

Papers

- [2] P. Beall, N. Kuzmanovski, Y. O. Li, and A. Seceleanu, *The MacaulayPosets package for Macaulay2*, in preparation.
- [1] P. Beall, E. Boyali, N. Chen, E. Chlachidze, T.T. Dao, F. Garvey, M. Johnson, Y.O. Li, N. Kuzmanovski, K. Ma, T. Mal, R. Marasinghe, Q. Mayo, N. Minsky-Primus, A. Seceleanu, and S. Veerapaneni, *Constructions of Macaulay Posets and Macaulay Rings*, preprint (2025), available at <https://arxiv.org/abs/2502.15166>

Presentations

- “Schubert polynomials as generating polynomials”
20-minute talk at UMS Spring 2025 Undergraduate Talk Extravaganza 6 Mar 2025
- “Investigating Constructions of Macaulay Posets and Rings”
15-minute talk at UMRS25@UF 25 Apr 2025
15-minute talk with 2 co-presenters at NCUWM 2025 1 Feb 2025
50-minute talk to UF's University Math Society (UMS) 24 Jan 2025
poster with 2 co-presenters at the AMS-PME Undergraduate Student Poster Session 10 Jan 2025
20-minute talk with 3 co-presenters at the AMS Special Session on Polymath Jr REU Student Research 8 Jan 2025
- “A few q -analogs”
20-minute talk at UMS Fall 2024 Undergraduate Talk Extravaganza 7 Nov 2024
3-minute talk at BRIDGES 2024 10 July 2024
- “An Equivalent Form of Choice in Linear Algebra”
20-minute talk at UMS Spring 2024 Undergraduate Talk Extravaganza 15 Feb 2024
- “Constructing \mathbb{Z} ”
20-minute talk at UMS Fall 2023 Undergraduate Talk Extravaganza 9 Nov 2023

Outreach and Service

- Oct 2024– Mentor for two first-year undergraduates in mentor-mentee program at the UF chapter of AWM
Apr 2025
- Aug 2024– Academic Director for the University Math Society at UF
Apr 2025

Conference and Workshop Attendance

Park City Math Institute 2025 Undergraduate Summer School Park City	6–26 July 2025
Macaulay2 Workshop UW–Madison	30 June – 4 July 2025
Undergraduate Week of CMND Thematic Program in Topology & Algebraic Geometry Notre Dame University	2–6 June 2025
LSU RTG Undergraduate Summer Workshop Louisiana State University	19–30 May 2025
60th Cornell Topology Festival Cornell University	2–4 May 2025
5th OURFA ² M ² Virtual	8–9 Feb 2025
27th Nebraska Conference for Undergraduate Women in Mathematics University of Nebraska-Lincoln	31 Jan – 2 Feb 2025
Joint Mathematics Meetings 2025 Seattle	8–11 Jan 2025
Building Relationships for an Inclusive and Diverse Group of Emerging Students 2024 University of Utah	10–12 July 2024
Queen's Mathematics Summer School 2024 Queen's University at Kingston	17–21 June 2024
41st Workshop in Geometric Topology Calvin University	13–15 June 2024
59th Cornell Topology Festival Cornell University	3–5 May 2024
Conference on Enumerative and Algebraic Combinatorics University of Florida	25–27 Feb 2024

Graduate Coursework

MAS6331	Algebra 1 field theory, Galois theory, and category theory
MAS6332	Algebra 2 commutative algebra and noncommutative algebra
MAP6213	Variational Calculus and Optimal Control calculus of variations, optimality theory, and discrete optimizations
MTG6346	Topology 1 covering spaces and homology
MTG6347	Topology 2 cohomology
MAD6207	Combinatorial Theory 2 analytic combinatorics