

Evan Henning
Vita (9/2026)

Department of Mathematics
University of Kentucky
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U.S Citizen

Research Interests

Combinatorics, Hopf algebras, graph theory.

Education

University of Kentucky (8/23–Present)

- Masters in Mathematics. (8/23–12/25)
- Ph.D. student in Mathematics.

Grand Valley State University (8/19–5/23)

- B.S. in Mathematics and Philosophy (5/23).
- GPA: 3.957 (Math–3.982, Philosophy–3.940)

Research and Teaching Experience

University of Kentucky, Dept. of Mathematics Teaching Assistant (8/23–present)

- Lead recitation in various 100 level math classes.
- Primary instructor for various 100 level math classes during summer semesters.

Undergraduate Research at Grand Valley State University (2/22–12/23)

- Developed integer sequences recording the number of edge covers of various graph families.
- Uploaded new sequences and new interpretations of known sequences to the Online Encyclopedia of Integer Sequences.

Ann Arbor Spark Michigan STEM Forward Research Assistant (6/22–8/22)

- Helped lead a mathematics research group at Grand Valley State University.
- Assisted students with understanding and developing methods in counting edge covers of their own graph families.

Awards and Scholarships

- Excellence in a Discipline Award (Philosophy, Grand Valley State University) (2022–2023)
- Grand Valley State University Mathematics Department Senior Award (2022–2023)
- Clifford J. Swauger Jr. Graduate Fellowship (Summer 2026)

Presentations

- Qualifying Examination, (4/06/25)
“Permutation Hopf algebras”
- Graduate Student Colloquium, (12/10/25)
“The Hopf algebra of juggling”
- Masters Examination, (10/20/25)
“On the incidence Hopf algebra of the hereditary family of the intervals of the non-crossing partition lattice.”
- International Mathematics and Statistics Student Research Symposium, via Zoom, (4/16/23)
“On the sequences arising from the edge covers and the edge cover polynomials of caterpillar, spider, and cycle star graphs.”
- Grand Valley State University Student Scholars Day, (4/12/23)
“On the classification of seven-dimensional solvable Lie Algebras with $A_{5,1}$ Nilradical.”
“Sequences from Spiders, Cycle Stars, Caterpillars, and Cycles with Pendants.”
- Central Michigan University Graduate Student Seminar, (3/28/23)
“Sequences from the edge cover and edge cover polynomials of Caterpillars, Chorded Cycles, Spider, and Ladder graphs.”
- Central Michigan Kappa Mu Epsilon Invited Talk, (3/28/23)
“Relating Fibonacci numbers to the edge covers of a variety of graphs.”
- Grand Valley State University Math Department Colloquia, (12/09/23)
“Sequences from Spiders, Chorded Cycles, Caterpillars, Cycles with Pendants.”
- Andrews University Student Math Colloquium (with Jacob Ritsema), (11/11/22)
“Using various methods to develop sequences from the edge covers of chorded cycles, caterpillar graphs, pendant cycles, spider graphs, and ladder graphs.”
- Grand Rapids Community College Mathematics Colloquium, (10/06/22)
“Using various methods to develop sequences from the edge covers of chorded cycles, caterpillar graphs, and ladder graphs.”
- Mid-Michigan Symposium for Undergraduate Research Experiences, (Michigan State University), (7/27/22)
“A formal proof for the sequence generated by the edge cover of spider graphs.”
- Summer Undergraduate Michigan Mathematics Research Conference, (University of Michigan, Dearborn), (7/08/22)
“A new method of counting edge covers and the sequences formed by the edge covers of spider graphs, triangular ladder graphs, and chorded cycles.”
- Grand Valley State University Math Department Colloquia, (4/21/22)
“The sequences generated by path and cycle graphs.”
- Grand Valley State University Student Scholars Day, (4/13/22)
“Sequences generated by path and cycle graphs and sequences from some spider graphs.”
- Michigan MAA Conference, (Grand Valley State University), (4/09/22)
“The sequences generated by path and cycle graphs and some spider graphs.”

Publications

Refereed journal publications

- [1] “*Edge Covers of Caterpillars, Cycles with Pendants, and Spider Graphs*,” *Journal of Integer Sequences* **26** (2023), (with Feryal Alayont).
- [2] “*Volumes of consecutively defined sets*,” *The Australasian Journal of Combinatorics* **96** (2026), (with Richard Ehrenborg).

Papers in preparation

- [2] “*Results on Edge Covers of Certain Graph Families*,” in preparation (with Feryal Alayont, Jacob Ritsema).
- [3] “*Classifying the 7th Dimensional Lie Algebras with 5th Dimensional Nilradical $A_{5,1}$* ,” in preparation (with R. Dolan, A. Goetzing, F. Hindeleh, D. Phan, S. Webb).

Volunteer and Extracurriculars

Michigan Mathematical Association of America, Member (2022)

Delta Tau Delta, Member (9/19–5/23)

- Director of Academic Affairs, Director of Recruitment, Director of Standards, Risk Manager
- Planned and organized many events concerning recruitment, academics, and fraternity standards.
- Made individualized academic support plans for members who were below fraternity standards

Juvenile Diabetes Research Foundation One Walk (2019,2022)

- Yearly event sponsored by Delta Tau Delta – Iota Upsilon chapter. Organized and set-up walk to raise awareness for and to generate funds to support research for type-one diabetes

Relevant Coursework

- Graduate Algebra (Linear Algebra, Groups/Rings, Field Theory, Rings and Modules, Hopf Algebras)
- Graduate Analysis (Principles of Analysis, Real Analysis/Measure Theory)
- Graduate Topology (Point Set, Algebraic Topology 1 & 2)
- Graduate Combinatorics (Graph Theory, Enumerative Combinatorics)
- Topics in Combinatorics (Polytopes and the cd-index, Coxeter groups and the weak order, Permutations, Topological Combinatorics, Amazing Matrices and Eulerian Structures)
- Independent Study (Reading course on generalizations of the cd-index of subdivisions of posets, with Professor R. Ehrenborg)