

# Bryce Frederickson | Curriculum Vitae

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## Education

<b>Emory University</b> <i>Ph.D. Student in Mathematics</i>	<b>2020–Present</b>
<b>Utah State University</b> <i>B.S. in Mathematics with University Honors</i>	<b>2020</b>

## Awards and Honors

<b>NSF Graduate Research Fellowship Program</b> <i>National Science Foundation</i>	<b>2020–2025</b>
<b>Goldwater Scholarship</b> <i>Barry Goldwater Scholarship &amp; Excellence in Education Foundation</i>	<b>2019–2020</b>
<b>Undergraduate Research Fellowship</b> <i>Utah State University</i>	<b>2014–2015, 2017–2020</b>
<b>Peak Prize Undergraduate Researcher of the Year</b> <i>Utah State University</i>	<b>2019</b>

## Publications

- Frederickson, B., Kamčev, N., Liebenau, A., Van de Voorde, G. “A new family of Sidorenko linear configurations.” Book chapter in *2023 Matrix Annals* (2025), pp. 711–716.
- Frederickson, B., Yepremyan, L. “Vector space Ramsey numbers and weakly Sidorenko affine configurations.” *Quarterly Journal of Mathematics* (2025), pp. 77–94.
- Frederickson, B., Rödl, V., Sales, M. “A note on the induced Ramsey theorem for spaces.” *Combinatorial Theory*, 4(2) (2024).
- Araujo, I., Frederickson B., Krueger R., Lidický B., McAllister T., Pfender F., Spiro S., and Stucky E. “Triangle percolation on the grid.” *Discrete & Computational Geometry* (2024), pp. 1–25.
- Frederickson B., Michel L. “Circuit decompositions of binary matroids.” *SIAM Journal on Discrete Mathematics*, 38 (2) (2024), pp. 1193–1201.
- Coskey S., Frederickson B., Mathers S., and Yan H. “On splitting and splittable families.” *Australasian Journal of Combinatorics*, 82 (3) (2022), pp. 268–296.
- Brown D., Culver E., Frederickson B., Tate S., Thomas B. “Entropy of tournament digraphs.” *Linear Algebra and its Applications*, 584 (2020), pp. 371–393.
- Brown D., Frederickson B. “Rényi Ordering of Tournaments.” *Journal of Combinatorial Mathematics and Combinatorial Computing*, 114 (2020), pp. 59–76.

## Preprints

- Borgwardt, S., Dvořák, Z., Frederickson, B., Nix, A., Yoo, Y. “Improved Decomposition Bounds for Partition Polytopes and Odd-Covers.” Submitted. (arXiv:2507.12748)
- Bucić M., Frederickson B., Müyesser A., Pokrovskiy A., Yepremyan L. “Towards Graham’s rearrangement conjecture via rainbow paths.” Submitted. (arXiv:2503.01825)
- Campbell R., Davies J., Distel M., Frederickson B., Gollin P., Hendrey K., Hickingbotham R., Wiederrecht S.,

- Wood D., Yepremyan L. "Treewidth, Hadwiger Number, and Induced Minors." Submitted. (arXiv:2410.19295)
- Ferber A., Frederickson B., Mao D., Yepremyan L., Zhu Y. "Regular bipartite decompositions of pseudorandom graphs." Submitted. (arXiv:2410.12981)
  - Borgwardt S., Buchanan C., Culver E., Frederickson B., Rombach P., Yoo Y. "Path odd-covers of graphs." Submitted. (arXiv:2306.06487)

## Presentations

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- "Turán and Ramsey problems in vector spaces over finite fields." Invited talk, Finite Geometry and Ramsey Theory, Banff International Research Station (BIRS), Canada, September 9, 2025.
- "Turán and Ramsey problems in vector spaces over finite fields." LSU Combinatorics Seminar (virtual), Louisiana State University, September 20, 2024.
- "Turán and Ramsey problems in vector spaces over finite fields." Graduate Student Combinatorics Conference, Pittsburgh, PA, March 17, 2024.
- "Turán and Ramsey problems in vector spaces over finite fields." Georgia Tech Graph Theory Seminar, Atlanta, GA, November 28, 2023.
- "Upper bounds on Ramsey numbers for vector spaces over finite fields." Contributed talk, European Conference on Combinatorics, Graph Theory and Applications, Prague, Czech Republic, August 28, 2023.
- "Turán and Ramsey-type Problems for Affine Structures." Contributed minisymposium, Canadian Discrete and Algorithmic Mathematics Conference, Winnipeg, Canada, June 5, 2023.
- "Path odd-covers of graphs." Monash Discrete Mathematics Research Group Seminar, Clayton, Australia, April 24, 2023.
- "A new proof of the induced Ramsey theorem for projective hypergraphs." Brigham Young University Discrete Math Seminar, Provo, UT, November 10, 2022.
- "The combinatorics of splitting and splittable families." Poster session, Utah State University Student Research Symposium, Logan, UT, April 11, 2019.
- "The combinatorics of splitting and splittable families." Poster session, Joint Mathematics Meetings, Baltimore, MD, January 16–19, 2019.
- "The combinatorics of splitting and splittable families." Poster session, Mathematical Biosciences Institute Summer Undergraduate Capstone Conference, Columbus, OH, August 12, 2018.
- "The combinatorics of splitting and splittable families." Poster session, Idaho Conference on Undergraduate Research, Boise, ID, July 25, 2018.
- "Rényi ordering of tournaments." Utah State University Student Research Symposium, Logan, UT, April 12, 2018.
- "Rényi ordering of tournaments." Intermountain Section, Mathematical Association of America, Logan, UT, March 23–24, 2018.
- "Linear algebra in the land where  $1+1=1$ ." Utah Regional Undergraduate Mathematics Conference, Orem, UT, November 1, 2014.

## Teaching

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### **Emory University:** Main Instructor

- Linear Algebra (MATH 221) Summer 2023
- Calculus I (MATH 111), Fall 2022, Spring 2023

### **Emory University:** Teaching Assistant

- Real Analysis II (MATH 412) Spring 2022
- Real Analysis I (MATH 411) Fall 2021

### **Emory University:** Grader

- Graduate Combinatorics I (MATH 535) Fall 2024
- Abstract Vector Spaces (MATH 321) Spring 2021
- Numerical Analysis (MATH 315) Fall 2020

### **Park City Mathematics Institute:** Teaching Assistant

- Undergraduate Summer School on Extremal Combinatorics Summer 2025
- Utah State University:** Recitation Leader
- Linear Algebra (MATH 2270) Fall 2019, Spring 2020
- Calculus II (MATH 1220) Fall 2017
- Utah State University:** Math/Stat Teaching Fellow
- Analysis I (MATH 5210) Fall 2018
- Utah State University:** Grader
- Complex Variables (MATH 5270) Spring 2019
- Algebraic Structures (MATH 4310) Spring 2018
- Other Roles:**
- Mentor for the Emory University Undergraduate Directed Reading Program Fall 2023
- Math tutor for the Utah State University Honors Program 2018-2020
- Math tutor for the Utah Valley University Math Lab 2013-2014

## Invited Workshops/Conferences

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- Atlanta Graduate Combinatorics Workshop; Georgia Tech; October 10–11, 2025
- Finite Geometry and Ramsey Theory; Banff International Research Station, Banff, Canada; September 7–12, 2025
- PCMI Graduate Summer School; Park City, Utah; July 6–26, 2025
- Desert Discrete Math Workshop II; Borrego Springs, California; April 20–26, 2025
- Algebraic and Analytic Methods in Combinatorics; SLMath, California; March 17–21, 2025
- Introductory Workshop - Graph Theory: Extremal, Probabilistic and Structural; SLMath, California; February 10–14, 2025
- Connections Workshop: Extremal Combinatorics; SLMath, California; February 6–7, 2025
- Graduate Research Workshop in Combinatorics (GRWC); Milwaukee, Wisconsin; May 19–31, 2024
- Desert Discrete Math Workshop; Borrego Springs, California; January 21–27, 2024
- MATRIX Workshop on Extremal Problems in Graphs, Designs, and Geometries; Creswick, Australia; December 4–9, 2023
- Eurocomb '23; Prague, Czech Republic; August 28–September 1, 2023
- CanaDAM 2023; Winnipeg, Canada; June 5–8, 2023
- Summer School in Algebraic Methods in Combinatorics; UIUC, Illinois; May 29–June 2
- Summer School in Graph Coloring; UIUC, Illinois; May 23–26, 2023
- MATRIX-IBS Workshop: Structural Graph Theory Downunder III; Creswick, Australia; April 17–23, 2023
- Graduate Research Workshop in Combinatorics (GRWC); CU Denver; July 24–August 5, 2022
- Second Armenian Workshop on Graphs, Combinatorics, and Probability; Armenia; July 3–9, 2022

## Service

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Refereed for: *Journal of Combinatorial Theory, Series B*; *Electronic Journal of Combinatorics*; *MATRIX Annals*.