

Brent Cody

Associate Professor

Department of Mathematics and Applied Mathematics
Virginia Commonwealth University
Richmond, VA 23284, USA
☎ (804) 334-3921
✉ bmcodey@vcu.edu
🌐 <https://brentcody.github.io/>

Education

- 2012 **Ph.D. in Mathematics**, *The Graduate Center of the City University of New York*
Advisor: Joel David Hamkins
- 2004 **M.S. in Mathematics**, *University of Virginia*
- 2002 **B.S. in Mathematics; B.S. in Physics**, *Virginia Commonwealth University*
Graduated *Magna Cum Laude*, with honors

Professional Positions

- 2022–Present **Associate Professor**, *Virginia Commonwealth University*, Richmond, VA
- 2016–2022 **Assistant Professor**, *Virginia Commonwealth University*, Richmond, VA
- 2013–2016 **Visiting Assistant Professor**, *Virginia Commonwealth University*, Richmond, VA
- 2012–2013 **Postdoctoral Fellow**
Fall 2012: The Fields Institute for Research in Mathematical Sciences, Toronto, Ontario
Spring 2013: University of Prince Edward Island, Charlottetown, Prince Edward Island
(mentor: Maxim Burke)

Publications

Student coauthors are marked: * undergraduate, † graduate.

Papers in preparation

J. Bagaria and B. Cody. Diagonal hypersquares, *in preparation*.

B. Cody and Rose Detore*. Metric general position graph invariants and graph powers, *in preparation*.

Papers submitted for publication

- 25 B. Cody and Rose Detore*. Metric general position extensions of classical graph invariants and perfection, *submitted*, 2025.
- 24 Viktoriya Bardenova†, Neal Bushaw, B. Cody, Paul Fay† and Maya Tennant†. The Wiener index of vertex colorings, *submitted*, 2025.

Published and accepted papers

- 23 B. Cody, C. Lambie-Hanson, and J. Zhang. Two-cardinal derived topologies, indescribability, and Ramseyness. *Journal of Symbolic Logic*, **91**(3):1260–1288, 2026. doi:10.1017/jsl.2024.16.
- 22 B. Cody and Garrett Moore*. The k -general d -position problem for graphs. *Discrete Applied Mathematics*, **366**: 135–151, 2025.

- 21 Neal Bushaw, B. Cody and Chris Leffler^{*}. Sets of vertices with extremal energy. *Discrete Mathematics*, **348**(7): Paper no. 114466, 2025.
- 20 Neal Bushaw, B. Cody, Luke Freeman^{*} and Tobias Whitaker. The music and mathematics of maximally even sets. *Bridges Proceedings*, 2024.
- 19 B. Cody and P. White[†]. Two-cardinal ideal operators and indescribability. *Annals of Pure and Applied Logic*, **175**(8): Paper No. 103463, 17pp., 2024.
- 18 B. Cody. Higher indescribability and derived topologies. *Journal of Mathematical Logic*, **24**(1): Paper No. 2350001, 48pp., 2024.
- 17 B. Cody. Large cardinal ideals. Peer-reviewed book chapter, accepted 2020, in *Research Trends in Contemporary Logic* (College Publications); volume forthcoming. Preprint: arXiv:2102.09591.
- 16 B. Cody, S. Cox, and K. Lee^{*}. Sparse analytic systems. *Forum of Mathematics, Sigma*, Paper No. e58, 9 pp., 2023.
- 15 B. Cody and P. Holy. Higher indescribability and ideal operators. *Journal of Symbolic Logic*, **88**(2):835–873, 2023.
- 14 B. Cody, V. Gitman, and C. Lambie-Hanson. A $\square(\kappa)$ -like principle consistent with weak compactness. *Annals of Pure and Applied Logic*, **172**(7):102960, 26 pp., 2021.
- 13 B. Cody. A refinement of the Ramsey hierarchy via indescribability. *Journal of Symbolic Logic*, **85**(2):773–808, 2020.
- 12 B. Cody. Characterizations of the weakly compact ideal on $P_\kappa\lambda$. *Annals of Pure and Applied Logic*, **171**(6):23 pp., 2020.
- 11 B. Cody and H. Sakai. The weakly compact reflection principle need not imply a high order of weak compactness. *Archive for Mathematical Logic*, **59**(1–2):179–196, 2020.
- 10 B. Cody. Adding a non-reflecting weakly compact set. *Notre Dame Journal of Formal Logic*, **60**(3):503–521, 2019.
- 9 B. Cody and M. Eskew. Rigid Ideals. *Israel Journal of Mathematics*, **224**(1):343–366, 2018.
- 8 B. Cody and S. Cox. Indestructibility of generically strong cardinals. *Fundamenta Mathematicae*, **232**(2):131–149, 2016.
- 7 B. Cody, M. Gitik, J. D. Hamkins, and J. Schanker. The least weakly compact cardinal can be unfoldable, weakly measurable, and nearly θ -supercompact. *Archive for Mathematical Logic*, **54**(5–6):491–510, 2015.
- 6 B. Cody and V. Gitman. Easton’s theorem for Ramsey and strongly Ramsey cardinals. *Annals of Pure and Applied Logic*, **166**(9):934–952, 2015.
- 5 B. Cody, S.-D. Friedman, and R. Honzik. Easton functions and supercompactness. *Fundamenta Mathematicae*, **226**(3):279–296, 2014.
- 4 B. Cody and M. Magidor. On supercompactness and the continuum function. *Annals of Pure and Applied Logic*, **165**(2):620–630, 2014.
- 3 B. Cody. Easton’s theorem in the presence of Woodin cardinals. *Archive for Mathematical Logic*, **52**(5–6):569–591, 2013.

- 2 A. W. Apter and B. Cody. Consecutive singular cardinals and the continuum function. *Notre Dame Journal of Formal Logic*, **54**(3):125–136, 2013.
- 1 B. Cody. The failure of GCH at a degree of supercompactness. *Mathematical Logic Quarterly*, **58**(1–2):83–94, 2012.

Grants and Fellowships

- Fall 2025 **VCU CHS Dean’s Research Grant**, Graph Coloring
PI. \$4,226 for student and faculty support; funded summer 2026 research for undergraduates Rose Detore and Garrett Moore and for the PI.
- Summer 2025 **VCU Undergraduate Research Opportunities Program (UROP)**, Mutual Visibility Chromatic Numbers of Graphs
Mentor to Rose Detore. \$1,500 for student and \$500 for faculty professional development.
- Fall 2023–Spring 2024 **Seed Award, College of Humanities and Sciences, VCU**, The Mathematics and Music of Maximally Even Sets
PI. Neal Bushaw (co-PI, VCU Mathematics) and Tobias Whitaker (co-PI, VCU Music). \$5,000.
- Spring 2023 **The Fields Institute for Research in Mathematical Sciences, Toronto**, Long-term Visitor
Three months of support (\$12,000 USD) to participate in the Thematic Program on Set-Theoretic Methods in Algebra, Dynamics, and Geometry.
- Fall 2016–Spring 2017 **Presidential Research Quest Fund, VCU**, Open Problems in the Foundations of Mathematics
Co-PI with Sean Cox (PI) and Monroe Eskew (co-PI). \$~30,000.
- Co-organized *Idealfest*.
 - Co-taught MATH 591: *Filters, Ultrafilters and Applications*.
- Fall 2010–Spring 2012 **Doctoral Student Travel Grant, CUNY Graduate Center**
\$2,000.

Research Presentations

Summary	Invited conference	Invited seminar	Contributed	Expository	Home institution	Total
2022–present	3	4	2	1	8	18
Career	6	19	5	1	16	47

Invited Conference Talks

- Mar 8, 2026 *Diagonal indescribability, reflection and squares in L* . 2026 Spring AMS Western Sectional Meeting, Boise State University.
- May 20, 2024 *Ideal-support products*. Workshop on Stationary Sets and Algebra, Virginia Commonwealth University.
- Apr 6, 2024 *Higher derived topologies*. AMS Sectional Meeting, Howard University.
- Oct 21, 2018 *Characterizations of the weakly compact ideal on $P_\kappa\lambda$* . AMS Special Session, University of Michigan, Ann Arbor.
- Aug 17, 2017 *Adding a non-reflecting weakly compact set*. ASL Logic Colloquium 2017, Stockholm, Sweden.
- Mar 11, 2016 *Rigid ideals*. Set Theory Day at CUNY (Conference for Joel Hamkins’ 50th birthday).

Invited Seminar Talks

- Feb 12, 2025 *The Wiener index of vertex colorings.* Open University, Discrete Mathematics Seminar.
- Nov 18, 2024 *Two-cardinal derived topologies.* Rutgers Logic Seminar.
- Nov 28, 2023 *Derived topologies on ordinals and uncountable products of the integers.* William & Mary Groups, Analysis, Geometry Seminar.
- Nov 18, 2022 *Sparse analytic systems.* City University of New York Set Theory Seminar.
- Nov 11, 2021 *Higher derived topologies.* George Washington University Logic Seminar.
- Feb 24, 2021 *Higher indescribability and ideal operators.* University of Barcelona Set Theory Seminar.
- Aug 7, 2020 *Higher indescribability and derived topologies.* City University of New York Set Theory Seminar.
- Nov 22, 2019 *A refinement of the Ramsey hierarchy.* City University of New York Set Theory Seminar.
- Sep 20, 2019 *Characterizations of the two-cardinal weakly compact ideal.* City University of New York Set Theory Seminar.
- Mar 8, 2019 *Large cardinal ideals and generic embeddings.* City University of New York Logic Workshop.
- Mar 9, 2018 *The weakly compact reflection principle, Part II.* City University of New York Set Theory Seminar.
- Sep 8, 2017 *The weakly compact reflection principle.* City University of New York Set Theory Seminar.
- Mar 2, 2017 *Rigid ideals.* Kurt Gödel Research Center Seminar, Vienna, Austria.
- Feb 13, 2013 *Supercompactness and Easton's Theorem.* University of Prince Edward Island Colloquium, PEI, Canada.
- Jan 22, 2013 *Supercompactness and Easton's Theorem.* University of Bristol, Bristol, England.
- Dec 2012 *Strong axioms of infinity and the continuum function.* Fudan University Logic Colloquium, Shanghai, China.
- Dec 2012 *What are strong axioms of infinity and why are they useful in mathematics?* Fudan University, Shanghai, China.
- Jul 6, 2012 *Easton's theorem in the presence of Woodin cardinals.* The Fields Institute Set Theory Seminar, Toronto, ON.
- Nov 14, 2011 *Some results on large cardinals and the continuum function.* Rutgers Logic Seminar, New Brunswick, NJ.

Contributed Conference Talks

- Oct 25, 2025 *Two-cardinal derived topologies.* Fall 2025 Eastern Virtual AMS Sectional Meeting.
- May 22, 2025 *Some connections between music theory and graph theory.* Virginia Academy of Sciences Annual Meeting, University of Virginia.
- May 21, 2019 *A $\square(\kappa)$ -like principle consistent with weak compactness.* ASL North American Annual Meeting, CUNY.

Jun 2015 *The weakly compact embedding property.* BLAST 2015, University of North Texas.

May 2014 *Indestructibility of generically strong cardinals.* ASL North American Annual Meeting, University of Colorado Boulder.

Expository and Outreach Talks

Nov 6, 2023 *The mathematics and music of maximally even sets.* Virginia Tech Math Club.

Talks at Home Institution

Apr 8, 2026 *Metric general position generalizations of classical graph invariants.* Discrete Mathematics Seminar, Virginia Commonwealth University.

Dec 3, 2025 *Energies of vertex colorings on paths and cycles.* Discrete Mathematics Seminar, Virginia Commonwealth University.

Oct 1, 2024 *The k -general d -position problem for graphs.* Discrete Mathematics Seminar, Virginia Commonwealth University.

Sep 13, 2024 *Maximal evenness in graphs.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Dec 1, 2023 *On some subgroups of uncountable products of the integers.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Nov 15, 2023 *Maximally even subsets of graphs.* Discrete Mathematics Seminar, Virginia Commonwealth University.

Mar 17, 2023 *Cohomology of derived topologies.* VCU Student Geometry Seminar.

Oct 14, 2022 *Sparse analytic systems.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Mar 26, 2021 *Higher indescribability and derived topologies.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Feb 7, 2020 *A refinement of the Ramsey hierarchy.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Sep 21, 2018 *Indescribability.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Sep 15, 2017 *The weakly compact ideal.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Fall 2016 *Ultrafilters and Applications: Nonstandard Analysis.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Fall 2014 *Introduction to Set Theory.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Sep 6, 2013 *Ultraproducts and Applications II.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Aug 30, 2013 *Ultraproducts and Applications I.* Analysis, Logic and Physics Seminar, Virginia Commonwealth University.

Teaching Experience

Fall 2013 – present **Virginia Commonwealth University**, Richmond, VA

MATH 201: Calculus with Analytic Geometry II

Taught multiple semesters: Fall 2013, Spring 2014, Fall 2014, Fall 2015, Fall 2020, Spring 2021, Spring 2022.

MATH 300: Introduction to Mathematical Reasoning

Taught Fall 2013, Fall 2015, Fall 2016, Fall 2023.

MATH 301: Differential Equations

Taught Spring 2019.

MATH 310: Linear Algebra

Taught Spring 2016, Spring 2019, Fall 2021, Spring 2022, Fall 2022.

MATH 407: Advanced Calculus

Taught Fall 2021.

MATH 409: General Topology

Taught Fall 2016, Fall 2017, Fall 2018, Fall 2019.

MATH 490: Mathematical Expositions

Taught multiple semesters between Fall 2014 and Spring 2021.

MATH 492: Independent Study

Topics included computability theory, Gödel's incompleteness theorems, forcing, and set theory. Students: Philip White, Samuel Dworkatzky; Ky-Quan Pham (Fall 2026, metric general position graph invariants).

MATH 493: Mathematical Sciences Internship

Supervised Lynh Tran (Spring 2016) and Tobeche Okoli (Spring 2018).

MATH 502: Abstract Algebra I

Taught Fall 2019, Fall 2023.

MATH 556: Graph Theory

Taught Fall 2026.

MATH 591: Topics in Logic — Filters, Ultrafilters, and Applications

Graduate seminar, Spring 2017.

MATH 591: Topics in Logic — Logic and Mathematical Structures

Graduate seminar, co-taught with Sean Cox, Spring 2014.

MATH 602: Abstract Algebra II

Taught Spring 2018, Spring 2020.

MATH 697: Directed Research

Directed research on forcing and large cardinals (student: Philip White).

MATH 698: Thesis Supervision

Supervised master's thesis of Philip White.

Other Teaching

July 2015 **Instructor, Graduate Summer School in Set Theory, University of California, Irvine**

Delivered five graduate-level lectures and problem sessions on contemporary research in set theory.

December 2012 **Guest Lecturer, Fudan University, Shanghai, China**

Gave four guest lectures on mathematical logic, covering ultrapowers and the compactness theorem.

- Summer 2008 – **Graduate Teaching Fellow**, *City University of New York*, New York, NY
 Spring 2012 Taught at Baruch College (Precalculus, Elements of Calculus, Fall 2009–Spring 2012) and Brooklyn College (SEEK Math 100, Summer 2008–2009).
 Fall 2003 – **Graduate Teaching Fellow**, *University of Virginia*, Charlottesville, VA
 Spring 2004 Taught one section of Calculus I each semester.

Advising and Mentoring

Self Development

- Oct 30, 2025 Participant in VCU CHS Research Mentor Training Workshop

Student Research Collaborators

- 2026 Ky-Quan Pham (undergraduate) — independent study on metric general position graph invariants
 2025–2026 Rose Detore (undergraduate) — UROP (Summer 2025); Dean’s Research Grant support (Summer 2026); paper submitted: [25]; paper in preparation
 2024 & 2026 Garrett Moore (undergraduate) — joint publication: [22]; Dean’s Research Grant support (Summer 2026)
 2024–2025 Maya Tennant (PhD student, advisor: Glenn Hurlbert) — joint project with Neal Bushaw; paper submitted: [24]
 2024–2025 Paul Fay (PhD student, advisor: Glenn Hurlbert) — joint project with Neal Bushaw; paper submitted: [24]
 2024–2025 Viktoriya Bardenova (PhD student, advisor: Glenn Hurlbert) — joint project with Neal Bushaw; paper submitted: [24]
 2024 Alex Johnson (graduate) — project on k -general d -position subsets of theta graphs
 2023–2024 Chris Leffler (undergraduate) — joint publication: [21]
 2023–2024 Luke Freeman (undergraduate) — joint publication: [20]
 2022 Kayla Lee (undergraduate) — joint publication: [16]
 2020–2021 Philip White (graduate) — joint publication: [19]

Master’s Thesis Advised

- 2019 Philip White, *Some intuition behind large cardinal axioms, their characterization, and related results*. VCU.

Service

Professional Service

Reviewer for *Mathematical Reviews* (*MathSciNet*).

Referee for journals

Bulletin of the London Mathematical Society

Proceedings of the American Mathematical Society

The Journal of Symbolic Logic

Fundamenta Mathematicae

Annals of Pure and Applied Logic

Bulletin of the Polish Academy of Sciences

Notre Dame Journal of Formal Logic

Archive for Mathematical Logic

Order

Pacific Journal of Mathematics

Discrete Applied Mathematics

Ars Mathematica Contemporanea

Bulletin of the Malaysian Mathematical Sciences Society

Spring 2025 **NSF Review Panelist**, Division of Mathematical Sciences, Foundations Program

Fall 2025 **External Reviewer**, Austrian Science Fund (FWF)

2024 **Co-organizer**, Stationary Sets in Algebra Workshop, VCU
May 20–22, 2024. <https://stationarysetsandalgebra2024.wordpress.com/>

2017 **Organizer**, Mid-Atlantic Mathematical Logic Seminar (MAMLS), VCU
April 1–2, 2017. <https://brentcody.github.io/mamls/>

2017 **Co-organizer (with Sean Cox)**, Idealfest, VCU
April 28, 2017.

2013–present **Co-organizer**, Analysis, Logic, and Physics Seminar (ALPS), VCU
Department of Mathematics and Applied Mathematics.

2012 **Organizing Committee Member**, Mid-Atlantic Mathematical Logic Seminar (MAMLS), CUNY
Spring 2012 Meeting.

2011 **Organizer**, CUNY Set Theory Seminar, CUNY
Fall 2011.

Departmental Service

2025–2026 **Committees:**

- Executive Committee
- Jamie Lovin’s promotion committee (Chair: Aimee Ellington) — secondary reviewer of Jamie Lovin’s teaching
- Assessment Committee

2024–2025 **Committees:**

- Executive Committee
- Andy Bristow’s promotion committee (Chair: Glenn Hurlbert) — primary reviewer of Andy Bristow’s teaching
- Assessment Committee — chair

- 2023–2024 **Committees:**
- Executive Committee
 - Allison Moore’s P&T Committee (Chair: Suzanne Robertson)
 - Kristina Anthony’s P&T Committee (Chair: Ghidewon Abay-Asmerom)
 - Assessment Committee (Chair: Suzanne Robertson)
 - BRIDGES Committee (Chairs: Ihsan Topaloglu and Glenn Hurlbert)
- 2022–2023 **Committees:**
- Undergraduate Curriculum Committee
 - Assessment Committee
 - Awards Committee
 - BRIDGES Committee
- 2021–2022 **Committees:**
- Undergraduate Curriculum Committee (Chair: Neal Bushaw)
 - Chair, Assessment Committee
 - Chair, Awards Committee
 - Website Committee
 - BRIDGES Committee
- 2020–2021 **Committees:**
- Undergraduate Affairs Committee (Chair: Aimee Ellington)
 - Assessment Committee (Chair: Ghidewon Abay-Asmerom)
 - Compiled Math 490 student presentation recordings for program review.
 - Drafted new learning outcomes for pure math concentration.
 - Visitation Committee (Chair: Marlene Kustesky)
 - Awards Committee (Chair: Neal Bushaw)
 - Contributed to nominations for distinguished faculty awards.
 - Helped write the Reuben Farley Award description.
 - BRIDGES Committee (Chair: Richard Hammack)
- 2019–2020 **Committees:**
- Undergraduate Affairs Committee (Chair: Aimee Ellington)
 - Led outreach to local high schools.
 - Designed a math project using geometric series and the game of *Escape*.
 - Presented at Thomas Jefferson High School.
 - Assessment Committee (Chair: Ghidewon Abay-Asmerom)
 - Developed new rubrics for assessing pure math courses.
- 2018–2019 **Search Committee (Chair: Marco Aldi):**
- Evaluated 120 applications on mathjobs.org, conducted 20 video interviews and 9 on-campus interviews.
 - Resulted in 4 tenure-track hires (2 geometry, 2 applied math).
- 2017–2018 **Committees:**
- Assessment Committee (Chair: David Chan)
 - Developed assessment tools for SACS accreditation.
 - Undergraduate Affairs Committee (Chair: Angela Reynolds)
 - Served on Credentials Subcommittee; evaluated transfer requests.
- Additional Departmental Activities**
- Spring 2021 **Outreach, Office of Admissions Transfer STEM-H Fair, VCU**
 Created slides and staffed departmental table, February 10, 2021.

- Spring 2020 **Math Circle Leader**, VCU, Richmond, VA
 Led a session on geometric series and the game of *Escape*.
- Fall 2019 **Community Outreach**, Binford Middle School, Richmond, VA
 Led a math club session on orthogonal projections with Kristina Anthony.
- Fall 2015–Fall 2018 **Co-organizer**, *Math Subject GRE Workshop Series*, VCU
 With Marco Aldi and Dan Cranston.
- Fall 2013–present **Co-organizer**, *Analysis, Logic, and Physics Seminar (ALPS)*, VCU
 Department of Mathematics and Applied Mathematics.
- College and University Service**
- Spring 2021 **Proposal Reviewer**, *VCU Presidential Research Quest (PeRQ) Fund*, VCU
 Reviewed two faculty research proposals.