Mathematics and Statistics Department
Derek Young
Assistant Professor
Mount Holyoke College,
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Education

Doctor of Philosophy in Mathematics   *Ames, IA*

IOWA STATE UNIVERSITY   *May 2019*

Advisor: Dr. Leslie Hogben

Bachelor of Science   *Ames, IA*

IOWA STATE UNIVERSITY   *May 2013*

Advisor: Dr. Sung Yell Song

Associate of Arts   *Jacksonville, FL*

FLORIDA STATE COLLEGE AT JACKSONVILLE   *May 2010*

Advisor: Gregory Dietrich

Academic Positions

Assistant Professor   *South Hadley, MA*

MOUNT HOLYOKE COLLEGE   *Fall 2022 -*

Visiting Lecturer   *South Hadley, MA*

MOUNT HOLYOKE COLLEGE   *Fall 2021 - Spring 2022*

Hutchcroft Fellow, Postdoctoral Visiting Lecturer   *South Hadley, MA*

MOUNT HOLYOKE COLLEGE   *Fall 2019 - Spring 2021*

Adjunct Instructor   *Northfield, MN*

ST. OLAF COLLEGE   *Spring 2019*

Teaching Assistant   *Ames, IA*

IOWA STATE UNIVERSITY   *Fall 2013 - Fall 2018*

Research Assistant   *Ames, IA*

IOWA STATE UNIVERSITY   *Summer 2017*

Scholarly Contributions

Note: Publications since joining MHC are marked as 🏷. Single author publications are marked as 🏷.

JOURNAL PUBLICATIONS

2025 🏷 Cashous Bortner, Jennifer Garbett, Elizabeth Gross, Naomi Krawzik, Christopher McClain, Derek Young. Maximum likelihood degree of the β-stochastic blockmodel. *Algebraic Statistics* , 2024.

2024 🏷 Emelie Curl, Shaun Fallat, Ryan Moruzzi Jr,Carolyn Reinhart, Derek Young. On the zero forcing number of the complement of graphs with forbidden subgraphs. *Linear Algebra and its Applications*, 2024

2024 🏷 Marina Arav, Louis Deaett, H. Tracy Hall, Hein van der Holst, Derek Young. A matching-minor monotone parameter for bipartite graphs. *Linear Algebra and its Applications*, 2024

2022 🏷 F. Scott Dahlgren, Zachary Gershkoff, Leslie Hogben, Sara Motlaghian, Derek Young. Inverse eigenvalue and related problems for hollow matrices described by graphs. *Electron. J. Linear Algebra*, 2022

2021 🏷🏷 Derek Young. Techniques for Determining Equality of the Maximum Nullity and the Zero Forcing Number of a Graph. *Electron. J. Linear Algebra*, 2021

2018 Joesph S. Alameda, Emelie Curl, Armando Grez, Leslie Hogben, O'Neill Kingston, Alex Schulte, Derek Young, and Michael Young. Families of graphs with maximum nullity equal to the zero forcing number. *Spec. Matrices*, 6:56-67, 2018.

2015 Christina Eubanks-Turner, Matthew Jake Lennon, Eduardo Reynoso, Brandy Thibodeaux, Amanda Urquiza, Ashley Wheatley, Derek Young. Using the division algorithm to decode Reed-Solomon Codes. *Shanghai Normal University*, 44:3, 2015.

ARXIVED PUBLICATIONS

2025 Louis , Derek Young. Relationships between minimum rank problem parameters for cobipartite graphs. `http://arxiv.org/abs/2504.02977`. 2025.

2018 Chassidy Bozeman, Joshua Carlson, Michael Dairyko, Derek Young, Michael Young. Lower Bounds for the Exponential Domination Number of $C_m \times C_n$. `https://arxiv.org/abs/1803.01933`. 2018.

Invited Talk

2025 *Relationships between minimum rank problem parameters for cobipartite graphs* : 56th Southeastern International Conference on Combinatorics, Graph Theory and Computing Boca Raton, FL, March 3-7, 2025.

2025 *Minimum Rank and Zero Forcing Parameters for Cobipartite Graphs*: Joint Mathematics Meetings Seattle, WA, January 8-11, 2025.

2023 *Minimum Rank and Zero Forcing Parameters for Cobipartite Graphs*: 54th Southeastern International Conference on Combinatorics, Graph Theory and Computing Boca Raton, FL, March 6-10, 2023.

2023 *Inverse eigenvalue and related problems for hollow matrices described by graphs* : Joint Mathematics Meetings, January 3-6, 2023

2022 *The Zero Forcing Number and Maximum Nullity of a Graph*: Smith College, November 17, 2022

2022 *The Zero Forcing Number and Maximum Nullity of a Graph*: University of Hartford, November 11, 2022

2022 *Minimum Rank and Zero Forcing Parameters for Cobipartite Graphs* : Joint Mathematics Meetings, April 6, 2022

2021 *The Zero Forcing Number and Maximum Nullity of a Graph*: University of Massachusetts Amherst, October 8, 2021

2021 *The Maximum Nullity and Zero Forcing Number of a Graph*: Joint Mathematics Meetings Virtual, January 7, 2021

2020 *Maximum Nullity and Zero Forcing Number of a Graph*: Slippery Rock University: Slippery Rock, PA, February 20, 2020

2020 *Some graphs whose maximum nullity and zero forcing number are the same*: Joint Mathematics Meetings Denver, CO, January 16, 2020

2019 *Determining the Maximum Nullity and Minimum Rank Field Independence for some graphs*: 50th Southeastern International Conference on Combinatorics, Graph Theory and Computing Boca Raton, FL, March 4-8, 2019.

2019 *Techniques for Determining Equality of the Maximum Nullity and the Zero Forcing Number of a Graph*: St. Olaf College Research Seminar Northfield, MN, March 22, 2019.

Contributed Talk

2022 *Inverse eigenvalue and related problems for hollow matrices described by graphs* : International Linear Algebra Society, June 22, 2022

2020 *Maximum Nullity and Zero Forcing Number of a Graph*: Mount Holyoke College South Hadley, MA, February 12, 2020

2019 *Determining the Maximum Nullity and Minimum Rank Field Independence for some graphs*: Joint Mathematics Meetings Baltimore, MD, January 16-19, 2019.

2018 *Determining the maximum nullity and minimum rank field independence for some graphs*: Conference for African-American Researchers in the Mathematical Sciences, Princeton, NJ, July 11-14, 2018.

2016 *Lower Bounds for the Exponential Domination Number of $C_m \times C_n$* : 47th Southeastern International Conference on Combinatorics, Graph Theory and Computing Boca Raton, FL, March 7-11, 2016.

2013 *Flows in Networks* : 7th Annual GMAP Research Symposium, Ames, IA, May 19, 2013.

2012 *Division Algorithm Decoding of Reed Solomon Codes*: 2012 Young Mathematicians Conference, Columbus, OH, July 27-29, 2012.

Contributed Poster

2018 *Determining the maximum nullity and minimum rank field independence for some graphs*: Conference for African-American Researchers in the Mathematical Sciences, Princeton, NJ, July 11-14, 2018.

2017 *Families of graphs with maximum nullity equal to zero forcing number*: International Linear Algebra Society, Ames, IA, July 24 - 28 2017.

2017 *Families of graphs with maximum nullity equal to zero forcing number*: Conference for African-American Researchers in the Mathematical Sciences, Ann Arbor, MI, June 21 - 24, 2017.

2016 *Lower Bounds for the Exponential Domination Number of $C_m \times C_n$*: Conference for African-American Researchers in the Mathematical Sciences, Princeton, NJ, June 15 - 18, 2016.

2014 *Finite Approximations of Ammann-Beenker Tiling*: Conference for
African-American Researchers in the Mathematical Sciences, Princeton, NJ, June 11 - 14, 2014.

2011 *Randomize Matrix Multiplication*: Society for Advancement of Chicanos and Native Americans in Science, San Jose, CA, October 27-30, 2011.

Workshops Attended

2024	**Research Experiences for Undergraduate Faculty (REUF)**, American Institute of Mathematics		*Pasadena, CA*
2023	**Research Experiences for Undergraduate Faculty (REUF)**, American Institute of Mathematics		*Providence, RI*
2023	**Project NExT (New Experiences in Teaching)**, Mathematical Association of America		*Tampa, FL*
2022	**Project NExT (New Experiences in Teaching)**, Mathematical Association of America		*Baltimore, MD*
2021	**Mathematics Research Communities (MRC)** , American Mathematical Society		*Remote*
2021	**AIM Research Communities (ARC)**, American Institute of Mathematics		*Remote*
2019	**African Diaspora Joint Mathematics Workshop (ADJOINT)**, Mathematical Sciences Research Institute		*Berkeley, CA*
2017	**Graduate Research Workshop in Combinatorics**, University of Colorado Denver		*Denver, CO*

Teaching Experience

Note: Courses taught during a modular semester marked as 🏷 and 🏷. These courses were taught in the first eight weeks and second eight weeks of the semester respectively.

S 2025	**Linear Algebra**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
S 2025	**Abstract Algebra (Group Theory)**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
S 2025	**Independent Study**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
	Kewen Yuan, Graph Theory: Zero Forcing and Directly Forceable Graphs	
	Khanh Dinh, Graph Theory: Zero Forcing and Directly Forceable Graphs	
F 2024	**Calculus II**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
F 2024	**Discrete Mathematics**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
F 2024	**Independent Study**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
	Kewen Yuan, Graph Theory: Zero Forcing and Directly Forceable Graphs	
S 2024	**Linear Algebra**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
S 2024	**Abstract Algebra (Group Theory)**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
F 2023	**Calculus II**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
F 2023	**Calculus II**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
S 2023	**Linear Algebra**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
S 2023	**Linear Algebra**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
F 2022	**Discrete Mathematics**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
F 2022	**Independent Study**, Mount Holyoke College - Assistant Professor	*South Hadley, MA*
	Jennifer Pham, planar graphs	
	Laura Thornburg, ramsey numbers	
S 2022	**Calculus II** 🏷, Mount Holyoke College - Visiting Lecturer	*Remote*
S 2022	**Discrete Mathematics** 🏷, Mount Holyoke College - Visiting Lecturer	*Remote*
F 2021	**Calculus II** 🏷, Mount Holyoke College - Visiting Lecturer	*Remote*
F 2021	**Discrete Mathematics** 🏷, Mount Holyoke College - Visiting Lecturer	*Remote*
F 2021	**Discrete Mathematics** 🏷, Mount Holyoke College - Visiting Lecturer	*Remote*
S 2021	**Discrete Mathematics** 🏷, Mount Holyoke College - Postdoctoral Visiting Lecturer	*Remote*
S 2021	**Linear Algebra** 🏷, Mount Holyoke College - Postdoctoral Visiting Lecturer	*Remote*
F 2020	**Linear Algebra** 🏷, Mount Holyoke College - Postdoctoral Visiting Lecturer	*Remote*
F 2020	**Linear Algebra** 🏷, Mount Holyoke College - Postdoctoral Visiting Lecturer	*Remote*
S 2020	**Discrete Mathematics**, Mount Holyoke College - Postdoctoral Visiting Lecturer	*Remote and South Hadley, MA*
F 2019	**Discrete Mathematics**, Mount Holyoke College - Postdoctoral Visiting Lecturer	*South Hadley, MA*
S 2019	**Calculus I**, St. Olaf College - Adjunct Instructor	*Northfield, MN*
S 2019	**Calculus I**, St. Olaf College - Adjunct Instructor	*Northfield, MN*
Su 2018	**College Alegbra**, Iowa State University	*Ames, IA*
S 2017	**Calculus I**, Iowa State University	*Ames, IA*

Accomplishments

GRANTS

Su 2022	**Data Analytics and Society Nexus track,** Co-developed Intro to Data Science Course.	*South Hadley, MA*
S 2020	**A Room of One's Own**, Session organizer.	*South Hadley, MA*
S 2017	**Solve-a-Thon Grant**, Session organizer.	*Ames, IA*
S 2016	**Solve-a-Thon Grant**, Session organizer.	*Ames, IA*

SCHOLARLY CONTRIBUTIONS

Su 2024	**Undergrad Researcher Mentor,** Mentored MHC undergraduate students.	*South Hadley, MA*
F 2023	**Hudson River Undergraduate Conference**, Section Moderator	*South Hadley, MA*

MOUNT HOLYOKE COLLEGE COMMITTEES

F 2023	**Search Committee**, Serve as a member of the Math/Stat search committee.	*South Hadley, MA*
F 2022	**Search Committee**, Serve as a member of the Math/Stat search committee.	*South Hadley, MA*

HONORS AND AWARDS

S 2018	**Poster Award for "Best Theory"**, Conference for African-American Researchers in the Mathematical Sciences(CAARMS)
S 2016	**Pathways Scholar for Transforming Undergraduate Mathematics Education Certificate**, Arizona State University
S 2010	**Ronald E. McNair Scholar**, Iowa State University