Derek Young

Assistant Professor
Mount Holyoke College
Mathematics and Statistics Department
50 College St, South Hadley, MA 01075

derekyoungmath
derekyoungmath
derekyoungmath
0000-0002-0463-0937

Education

Doctor of Philosophy in Mathematics — May 2019
Iowa State University — *Ames, IA*
Advisor: Dr. Leslie Hogben

Iowa State University — May 2013
Bachelor of Science — *Ames, IA*
Advisor: Dr. Sung Yell Song

Florida State College at Jacksonville — May 2010
Associate of Arts — *Jacksonville, FL*
Advisor: Gregory Dietrich

Academic Positions

Assistant Professor — Fall 2022 -
Mount Holyoke College — *South Hadley, MA*

Visiting Lecturer — Fall 2021 - Spring 2022
Mount Holyoke College — *South Hadley, MA*

Hutchcroft Fellow, Postdoctoral Visiting Lecturer — Fall 2019 - Spring 2021
Mount Holyoke College — *South Hadley, MA*

Adjunct Instructor — Spring 2019
St. Olaf College — *Northfield, MN*

Teaching Assistant — Fall 2013 - Fall 2018
Iowa State University — *Ames, IA*

Research Assistant — Summer 2017
Iowa State University — *Ames, IA*

Scholarly Contributions

Publications since joining MHC are marked as . Single author publications are marked as .

Journal Publications

- Louis Deaett, Derek Young. Relationships between minimum rank problem parameters for cobipartite graphs. *Discrete Applied Mathematics*, **2025**
- Cashous Bortner, Jennifer Garbett, Elizabeth Gross, Naomi Krawzik, Christopher McClain, Derek Young. Maximum likelihood degree of the β-stochastic blockmodel. *Algebraic Statistics*, **2025**
- 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**

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

- 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 Talks

- *Relationships between minimum rank problem parameters for cobipartite graphs* : International Linear Algebra Society, Kaohsiung, Taiwan, June 23-25, **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**.
- *Minimum Rank and Zero Forcing Parameters for Cobipartite Graphs* : Joint Mathematics Meetings, Seattle, WA, January 8-11, **2025**.
- *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**.
- *Inverse eigenvalue and related problems for hollow matrices described by graphs* : Joint Mathematics Meetings, January 3-6, **2023**.
- *The Zero Forcing Number and Maximum Nullity of a Graph* : Smith College, November 17, **2022**.
- *The Zero Forcing Number and Maximum Nullity of a Graph* : University of Hartford, November 11, **2022**.
- *Minimum Rank and Zero Forcing Parameters for Cobipartite Graphs* : Joint Mathematics Meetings, April 6, **2022**.
- *The Zero Forcing Number and Maximum Nullity of a Graph* : University of Massachusetts Amherst, October 8, **2021**.
- *The Maximum Nullity and Zero Forcing Number of a Graph* : Joint Mathematics Meetings, Virtual, January 7, **2021**.
- *Maximum Nullity and Zero Forcing Number of a Graph* : Slippery Rock University, Slippery Rock, PA, February 20, **2020**.
- *Some graphs whose maximum nullity and zero forcing number are the same* : Joint Mathematics Meetings, Denver, CO, January 16, **2020**.
- *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**.
- *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 Talks

- *Inverse eigenvalue and related problems for hollow matrices described by graphs* : International Linear Algebra Society, June 22, **2022**.
- *Maximum Nullity and Zero Forcing Number of a Graph* : Mount Holyoke College, South Hadley, MA, February 12, **2020**.
- *Determining the Maximum Nullity and Minimum Rank Field Independence for some graphs* : Joint Mathematics Meetings, Baltimore, MD, January 16-19, **2019**.
- *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**.
- *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**.
- *Flows in Networks* : 7th Annual GMAP Research Symposium, Ames, IA, May 19, **2013**.
- *Division Algorithm Decoding of Reed Solomon Codes* : 2012 Young Mathematicians Conference, Columbus, OH, July 27-29, **2012**.

Contributed Posters

- *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**.
- *Families of graphs with maximum nullity equal to zero forcing number* : International Linear Algebra Society, Ames, IA, July 24-28, **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**.
- *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**.
- *Finite Approximations of Ammann-Beenker Tiling* : Conference for African-American Researchers in the Mathematical Sciences, Princeton, NJ, June 11-14, **2014**.
- *Randomize Matrix Multiplication* : Society for Advancement of Chicanos and Native Americans in Science, San Jose, CA, October 27-30, **2011**.

Attended Workshops

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

Teaching Experience

Courses

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.

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

Mentoring

- *Undergraduate Research* : Mount Holyoke College, **Su 2024**.

Services

National

- ☑ *Hudson River Undergraduate Conference* : Section Moderator, Mount Holyoke College, **F 2023**.

Institutional

- ☑ *Search Committee* : Served as a member of Mathematics and Statistics search committee, Mount Holyoke College, **F 2023**.
- ☑ *Search Committee* : Served as a member of Mathematics and Statistics search committee, Mount Holyoke College, **F 2022**.

Departmental

- ☑ *Math/Stat Lunches* : Organize weekly meetings, Mount Holyoke College, **S 2025**.
- ☑ *Math/Stat Lunches* : Co-organize weekly meetings, Mount Holyoke College, **F 2020**.

Accomplishments

Grants

- ☑ *Data Analytics and Society Nexus track* : Mount Holyoke College, Teaching **Su 2022**.
- ☑ *A Room of One's Own* : Duke University, Research Facilitator **S 2020**.
- ☑ *Solve-a-Thon Grant* : Iowa State University, Session Organizer, **S 2017**.
- ☑ *Solve-a-Thon Grant* : Iowa State University, Session Organizer, **S 2016**.

Honors and Award

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

Skills

Computer

- ☑ Linux, Python, Git, Bash, LaTeX, Typst, Html