Lucy Martinez

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EDUCATION

Ph.D. Mathematics, Rutgers University   Expected 2027
Advisor: Doron Zeilberger
M.S. Mathematics, Rutgers University   May 2023
Awarded upon completion of written qualifying exams
B.S. Mathematics, Stockton University   May 2021
Minor in Computer Science

RESEARCH INTERESTS

Combinatorics, difference equations, experimental mathematics, symbolic computation, probability, random walk

FELLOWSHIPS, AWARDS, AND GRANTS

Fellowships

Rutgers School of Arts and Sciences Excellence Fellowship	2022 - 2023
Rutgers School of Graduate Studies Dean's Fellowship	2021 - 2022
National Science Foundation Graduate Research Fellowship (NSF-GRFP)	2021 - 2026

Awards and Grants

MAA Tensor Women & Mathematics Grants: EDGE Webinar ($5,947.20)	2025 - 2026
Joel Lebowitz Fellowship, Rutgers University ($2,500)	July 2025
Travel Award, AWM Research Symposium ($2,000)	May 2025
SIAM Student Travel Award, SIAM ($650)	2025
SGS Research & Travel Award, Rutgers University ($1,000)	2024 - 2025
SIAM Student Travel Award, SIAM ($800)	2024
Dr. Sylvia T. Bozeman Predoctoral Fellowship ($350)	March 2024
SGS Research & Travel Award, Rutgers University ($1,000)	2023 - 2024
AAECC Best Paper Award of 2022, AAECC (€4,000)	2023
Awarded for publication #1: *On Kostant's weight q-multiplicity formula for $\mathfrak{sl}_4(\mathbb{C})$*	
FoCM Conference Travel Award ($1,900)	June 2023
Dr. Sylvia T. Bozeman Predoctoral Fellowship ($500)	June 2023
Princeton Prospective PhD Preview Program - Honorific Mention	2020
High Impact Practices Scholarship, Stockton University ($500)	December 2020
Stockton University REU Award ($1,000)	December 2019
Stockton Student Travel Fund ($1,250)	October 2019

Stockton University Foundation Scholarship ($5,180)	2019 - 2021
Math Alliance Scholar	2019 - 2021
Hispanic Fund Scholarship	2019 - 2021

PUBLICATIONS

Preprint

3. *How many coin tosses would you need until you get n Heads or m Tails?*. S. Janson, L. Martinez, and D. Zeilberger. arXiv:2512.07803 (2025).
2. *Lucky cars in Fubini rankings and unit Fubini rankings*. C. Barreto, M. Beerbower, J. Elder, P. E. Harris, L. Martinez, J. L. Ramírez, S. Ramírez, G. Shirley, and J. C. Vásquez. arXiv:2510.27574 (2025).
1. *Enumerating vector parking functions and their outcomes based on specified lucky cars*. M. Ferreri, P. E. Harris, L. Martinez and E. Swartz. arXiv:2508.13917 (2025).

Accepted/In Press

1. *Parking functions with a fixed set of lucky cars*. P. E. Harris and L. Martinez. To appear in the Bulletin of the Institute of Combinatorics and its Applications.

Published

7. *A symbolic computational approach to the generalized gambler's ruin problem in one and two dimensions*. L. Martinez. Journal of Difference Equations and Applications, (2025), 1–25.
6. *Primeness of generalized parking functions*. S. Armon, J. Beckford, D. Hanson, N. Krawzik, O. Mandelshtam, L. Martinez, and C. Yan. The Electronic Journal of Combinatorics, Vol. 32 (2025), no. 4, P4.48.
5. *Hitting k primes by dice rolls*. N. Alon, Y. Malinovsky, L. Martinez, and D. Zeilberger. The Electronic Journal of Combinatorics, Vol. 32 (2025), no. 4, P4.16.
4. *Pullback parking functions*. J. Elder, P. E. Harris, L. Koene, I. Lavene, L. Martinez, and M. Oldham. American Journal of Combinatorics, Vol. 4 (2025), 1-22.
3. *A guide to the risk-averse gambler and resolving the St. Petersburg paradox once and for all*. L. Martinez and D. Zeilberger. The College of Mathematics Journal, Vol. 55 (2024), no. 3, 226-234.
2. *Repetitions of Pak-Stanley labels in G-Shi arrangements*. C. Bennett, L. Martinez, A. Mock, G. Rojas Kirby, and R. Truax. Discrete Mathematics, Vol. 347 (2024), no. 9.
1. *On Kostant's weight q-multiplicity formula for $\mathfrak{sl}_4(\mathbb{C})$*. R. E. Garcia, P. E. Harris, M. Loving, L. Martinez, D. Melendez, J. Rennie, G. Rojas Kirby, and D. Tinoco. Applicable Algebra in Engineering, Communication and Computing, Vol. 33 (2022), no. 4, 353-418.

Expository

1. *How many dice rolls would it take to reach your favorite kind of number?* L. Martinez and D. Zeilberger. Maple Transactions, Vol. 3 (2023), no. 3, Article 15953.

Teaching Experience

Institute for Pure & Applied Mathematics

Teaching Assistant, Practicum for Undergraduate MAthematicians   April 2024
   Three 1-hour problem sessions on introductory topics in matroid theory.

Rutgers University

Teaching Assistant

   Calculus II for the Mathematical and Physical Sciences   Fall 2025
   Calculus I for the Mathematical and Physical Sciences   Fall 2024

Grader, Computer Science Linear Programming Graduate Course   Fall 2023
Academic Success Mentor   Fall 2022 - Spring 2024

Stockton University

Teaching Assistant

   Quantitative Reasoning   Spring 2018 - Spring 2021
   Educational Opportunity Fund   Summer 2018
      Assisted students during assigned math modules for a six-week program designated
      for low-income students.
Mathematics Tutor (F20-S21 Head Tutor)   Spring 2018 - Spring 2021

Mentoring Experience

University of Puerto Rico, Ponce   Summer 2024
Graduate research mentor for the Combinatorics and Coding Theory in the Tropics REU

Brown University, ICERM institute   Summer 2022
Graduate research mentor for the Summer@ICERM: Computational Combinatorics REU

Presentations

Invited Talks

Parking Functions with a Fixed Set of Lucky Cars

   AWM Research Symposium, EDGE Special Session   May 2025
   Graduate Combinatorics Seminar, Rutgers University   April 2025

A Mirror Step Variant of Gambler's Ruin

   Experimental Mathematics Seminar, Rutgers University   February 2025
   Research Café, Rutgers University   January 2025

Primeness of Vector Parking Functions

JMM, MRC Algebraic Combinatorics Special Session	January 2025
Graduate Combinatorics Seminar, Rutgers University	November 2024

How Many Dice Rolls Would It Take to Hit Your Favorite Kind of Number?

JMM, Special Session on The EDGE Program	January 2024

The Power of Computation

Mathematics and Statistics Colloquium, The College of New Jersey	October 2023

The G-Shi Arrangement: Pak-Stanley Labels and Games on Paths

AMS Fall Central Sectional, University of Texas	September 2024
Mathematics Seminar, Stockton University	September 2023
Combinatorics Seminar, Berkeley University	March 2023

The Chip-firing Game and More

Graduate Pizza Seminar, Rutgers University	November 2023
Mathematics Seminar, Stockton University	October 2022

Minimum Rank of Regular Bipartite Graphs

Student Mathematics Conference, Moravian College	February 2021
JMM, Special Session on Research in Mathematics by	January 2021
Undergraduates and Students in Post-Baccalaureate Programs	
Canadian Mathematical Society Winter Meeting,	December 2020
Algebraic Combinatorixx Special Session	

Chromatic Symmetric Function of Trees

Mathematics Seminar, Stockton University	November 2020

Involution Derangement Graphs

Young Mathematicians Conference, The Ohio State University	August 2020
REU Conference, Clemson University	July 2020

Closed Formulas for Kostant's Partition Function for $\mathfrak{sl}_4(\mathbb{C})$

Student Mathematics Conference, Moravian College	February 2020

Geometric Constructions for Lie Algebra Type A_3

Mathematics Seminar, Stockton University	March 2020
Combinatorial Algebra meets Algebraic Combinatorics,	January 2020
Dalhousie University	

The q-analog of Kostant's Weight Multiplicity Formula for $\mathfrak{sl}_4(\mathbb{C})$

Mathematical Sciences Research Institute	July 2019

Contributed Talks

Parking Functions with a Fixed Set of Lucky Cars

(In Spanish) ICMAM Central America and the Caribbean Conference   October 2025

A Symbolic Computational Approach to the Generalized Gambler's Ruin Problem in One
Dimension

     Numerical Analysis Contributed Session, SIAM Annual Meeting   July 2025

From Linear Algebra to Graph Theory: Minimum Rank of Regular Bipartite Graphs

     Graphs Contributed Session, SIAM Linear Algebra Conference   May 2024

Posters

Parking Functions with a Fixed Set of Lucky Cars

     AWM Research Symposium   May 2025

Weyl Alternation Sets for $\mathfrak{sl}_4(\mathbb{C})$

     JMM   January 2020
     SACNAS Conference   November 2019

Outreach Talks

Mirror, Mirror: A random walk with a twist
     Rutgers University Math Circle   November 2025

Navigating Academia Despite the Obstacles
     Our Stories Session, Fourth Annual OURFA^{2}M^2 Conference   November 2023

Mentoring Experiences Through the Lens of a Mentee
     Critical Issues in Mathematics Education, MSRI   March 2023

RESEARCH AND WORKSHOP PARTICIPATION

Research Visits

Collaborate@ICERM, Brown University   January 2026
Women in Noncommutative Algebra and Representation Theory Workshop 4,
     Banff International Research Station, Canada   March 2025
Mathematical Research Communities, American Mathematical Society   June 2024

Summer Schools

Applied Math skills Improvement for Grad studies (AMIGAs), IPAM   July 2023
Algebraic Methods in Combinatorics, University of Illinois Urbana-Champaign   June 2023
Graph Coloring, University of Illinois Urbana-Champaign   May 2023

Workshops

Integrability and Algebraic Combinatorics, IPAM   April 2024
Modern Math Workshop, IMSI   October 2023
Foundations of Computational Mathematics, Sorbonne Université   June 2023

Modern Math Workshop, MSRI	October 2022
Open Problems in Algebraic Combinatorics, UMN Twin Cities	May 2022
The Women of Color Project, Harvard University	October 2020
IMA/Math Alliance Workshop on Career Paths, UMN Twin Cities	July 2020
Modern Math Workshop - MSRI	October 2019

Programs

Mathematics Outreach Seminar and Training, National Museum of Mathematics, New York City	July 2025
Latinas Achieve in STEM (LaSTEM), Stockton University	February - April 2021

This 7-week program was offered to 5 undergraduate Latinas interested in pursuing careers in STEM. One of the projects included a website that is showcased in the Student Transition Programs.

WRITING CONTRIBUTIONS TO THE PROFESSION

9. Empowering future leaders in Applied Mathematics: The AMIGAs Program. T. Azevedo, D. Beckelhymer, J. Jones, D. Galan Covarrubias, L. Martinez, and A. Singhal. SIAM News Blog, November 3, 2023.

8. AMIGAs' Impact: Computation, collaboration, community (C^3). T. Azevedo, D. Beckelhymer, J. Jones, D. Galan Covarrubias, L. Martinez, and A. Singhal. AWM Newsletter, Vol. 53, no. 6, November/December 2023, 25-27.

7. Questions to ask to identify a supportive graduate program as a woman or gender minority in math. B. Gelb, K. Beck, J. Hamlin, H. Mahmoudian, N. Malawo, L. Martinez, and R. Whitman. Math Values. April 12, 2023.

6. A model for a one-hour workshop on mentoring. P. E. Harris, Z. Markman, L. Martinez, A. Mock, E. J. Pabón Cancel, A. Verga, and S. Wang. MAA FOCUS, Vol. 41, no. 1, February/March 2023, 18-21.

5. Ten tips to being productive online for students - and everyone. L. Martinez. Math Values. February 25, 2021.

4. Supporting math majors and grad students in the time of pandemic. P. E. Harris, G. Marquez, and L. Martinez. e-Mentoring Network in the Mathematical Sciences-connecting students and mentors. AMS blogs. January 26, 2021.

3. Networking basics for math undergrads. J. Beckford, A. Christensen, P. E. Harris, L. Martinez, E. Torres Davila, and F. O. Ulysse. e-Mentoring Network in the Mathematical Sciences-connecting students and mentors. AMS blogs. July 21, 2020.

2. Learning during the pandemic: What we wish our professors and mentors knew. M. Cortez, M. Gutierrez, P. E. Harris, B. Keene-Gomez, L. Martinez, A. Minino, A. Prieto Langarica, K. Tesfaye, and S. e-Mentoring Network in the Mathematical Sciences-connecting students and mentors. AMS blogs. May 04, 2020.

1. Bank of REU/Grad fair questions. L. Martinez and E. Torres Davila. e-Mentoring Network in the Mathematical Sciences-connecting students and mentors. AMS blogs. January 24, 2019.

PROFESSIONAL DEVELOPMENT

Workshop Leader

How to Create your Professional Website
    AWM Chapter, Rutgers University   March 2025
    The University of Puerto Rico at Ponce   July 2024

CV Writing Workshop
    AWM Chapter, Rutgers University   November 2024/December 2025
    The University of Puerto Rico at Ponce   July 2024

Panelist

Undergraduate and Graduate Students, IGEN-Math	February 2025
Online Fall Graduate School fair Kickoff Panel, AMS	October 2024
Current and Recent Graduate Student Perspectives, GROW Conference	September 2024
Stockton University Alumni Panel	September 2024
Funding and Fellowships Panel, The Women+ of Color Project	October 2022
Graduate School Panel, Summer@ICERM	June 2022
Undergraduate Research Student Panel, CURM	June 2022
Beginning Undergraduates' Mathematical research Preparation Panel, YSU	May 2022
Student Panel, IMA/Math Alliance Workshop, University of Minnesota	July 2020
Educational Opportunity Fund, Stockton University	July 2020

SERVICE AND OUTREACH

Co-organizer

Undergraduate Special Session, AWM Research Symposium	May 2025
Experimental Mathematics Seminar, Rutgers University	Fall 2024 - Present
EDGE Webinar Series, EDGE Foundation	Fall 2023 - Present

Co-founder of the EDGE Webinar Series, EDGE Foundation   2023
Member of Department of Mathematics Climate Committee, Rutgers University   2023 - 2024
Facilitator, Cafe Con Leche, Research Talk hosted by Lathisms   March 2022
Co-founder and Co-president of the Stockton University AWM Chapter   2020 - 2021
Volunteer

Homework Completion Program, Atlantic City Library, NJ	March 2020
Networking/Speaker Series, Summer Math and Science Honors Academy	July 2019/2020

Proctor, High School Math Mayhem Competition, Stockton University   April 2019
Service-Learning Coordinator of the Alliance of EOF Students of NJ   2019 - 2020

MEMBERSHIPS

Society for Industrial and Applied Mathematics	Jan. 2024 - Dec. 2025
American Mathematical Society	Oct. 2021 - Dec. 2025

Association for Women in Mathematics	July 2020 - July 2021
American Statistical Association	Nov. 2019 - Nov. 2020
Pi Mu Epsilon (Member, 2019-2020 Secretary)	Sept. 2019 - May 2021
Advancement of Chicanos/Hispanics and Native Americans in Science	July 2019 - July 2024

SKILLS

Technology

Proficient in LaTeX, Sage, Maple and CoCalc. Some experience with HTML, Java and Python.

Other

Fluent in English and Spanish, both written and verbal.