

# Lucy Martinez

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## EDUCATION

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

## FELLOWSHIPS, AWARDS, AND GRANTS

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### 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: <i>On Kostant's weight <math>q</math>-multiplicity formula for <math>\mathfrak{sl}_4(\mathbb{C})</math></i>	
FoCM Conference Travel Award, NSF Grant DMS #2232812 (\$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

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### Preprint

2. *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).
1. *A symbolic computational approach to the generalized gambler's ruin problem in one and two dimensions*. L. Martinez. arXiv:2412.07667 (2024).

### Accepted/In Press

2. *Primeness of generalized parking functions*. S. Armon, J. Beckford, D. Hanson, N. Krawzik, O. Mandelshtam, L. Martinez, and C. Yan. To appear in The Electronic Journal of Combinatorics.
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

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

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### 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

Head Mathematics Tutor	Fall 2020 - Spring 2021
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.	
Math Tutor	Spring 2018 - Spring 2021

## MENTORING EXPERIENCE

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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

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### 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

## RESEARCH AND WORKSHOP PARTICIPATION

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### Research Visits

Women in Noncommutative Algebra and Representation Theory Workshop 4, Banff

International Research Station

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

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

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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<sup>3</sup>). 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

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### 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
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

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### 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

### Mentoring Activities

Speaker, Our Stories Session, Fourth Annual OURFA <sup>2</sup> M <sup>2</sup> conference	November 2023
Title: Navigating Academia Despite the Obstacles	
Speaker, Critical Issues in Mathematics Education, MSRI	March 2023
Title: Mentoring Experiences Through the Lens of a Mentee	

**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

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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

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### Technology

Proficient in  $\text{\LaTeX}$ , Sage, Maple and CoCalc. Some experience with HTML, Java and Python.

### Other

Fluent in English and Spanish, both written and verbal.