

# Lucy Martinez

Department of Mathematics, Rutgers University

✉ lucy.martinez@rutgers.edu

🖱 Website: marti310.github.io

## 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	2026 - 2027
National Science Foundation Graduate Research Fellowship (awarded in 2021)	2023 - 2026
Rutgers School of Arts and Sciences Excellence Fellowship	2022 - 2023
Rutgers School of Graduate Studies Dean's Fellowship	2021 - 2022

### Awards and Grants

MAA Tensor Women & Mathematics Grants (\$5,947.20)	2025 - 2026
Joel Lebowitz Fellowship, Rutgers University (\$2,500)	July 2025
Travel Award, AWM Research Symposium (\$2,000)	May 2025
SGS Research & Travel Award, Rutgers University (\$1,000)	2024 - 2025
SIAM Student Travel Award, SIAM (\$800)	2024/2025
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

4. *Hitting  $k$  primes by dice rolls*. N. Alon, Y. Malinovsky, L. Martinez, and D. Zeilberger.
3. *A symbolic computational approach to the generalized gambler's ruin problem in one and two dimensions*. L. Martinez.
2. *Primeness of generalized parking functions*. S. Armon, J. Beckford, D. Hanson, N. Krawzik, O. Mandelshtam, L. Martinez, and C. Yan.
1. *Parking functions with a fixed set of lucky cars*. P. E. Harris and L. Martinez.

## Published

4. *Pullback parking functions*. J. Elder, P. E. Harris, L. Koene, I. Lavene, L. Martinez, and M. Oldham. AmJC., Vol. 4 (2025).
3. *A guide to the risk-averse gambler and resolving the St. Petersburg paradox once and for all*. L. Martinez and D. Zeilberger. CMJ, 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 Math., 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. AAECC., Vol. 33 (2022), 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 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  
**Teaching Assistant**, 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 Undergraduates and Students in  
Post-Baccalaureate Programs January 2021  
Canadian Mathematical Society Winter Meeting, Algebraic Combinatorixx December  
2020

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, Dalhousie University	January 2020
The $q$ -analog of Kostant's Weight Multiplicity Formula for $\mathfrak{sl}_4(\mathbb{C})$	
Mathematical Sciences Research Institute	July 2019

### Contributed Talks

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 ( $C^3$ ). 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 Langerica,

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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### Workshops 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 Listening and Learning Session	
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 Fall 2020 - Spring 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 Fall 2019 - Spring 2020

## **MEMBERSHIPS**

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Society for Industrial and Applied Mathematics Jan. 2024 - 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.