

# Lucy Martinez

Rutgers University, Department of Mathematics  
lucy.martinez@rutgers.edu website: [marti310.github.io](https://marti310.github.io)

## Education

---

PhD candidate in Mathematics, Rutgers University	Sept. 2021 - Present
MS in Mathematics, Rutgers University*	May 2023
* Awarded upon completion of written qualifying exams	
BS in Mathematics, Stockton University	May 2021
Minor in Computer Science, Stockton University	May 2021

## Teaching Experience

- 
- |   |            |
|---|------------|
| 1. <a href="#">Practicum</a> for Undergraduate MAtheMATicians (PUMA), IPAM                                | April 2024 |
| • Graduate teaching assistant for three 1-hour problem sessions on introductory topics in matroid theory. |            |

### Rutgers University

- |   |                           |
|---|---------------------------|
| 1. Graduate Teaching Assistant  |                           |
| • Math 151: Calculus I for the Mathematical and Physical Sciences   |                           |
|   | Fall 2024                 |
| 2. Computer Science Grader - Graduate Linear Programming  | Fall 2023                 |
| 3. Academic Success Mentor  | September 2022 - May 2024 |
| • Provided math tutoring and mentorship support through one-on-one sessions for all students.   |                           |
| • Directly assisted students in developing effective study habits and academic self-efficacy through planning, facilitating workshops, and one-on-one sessions. |                           |

### Stockton University

- |   |                           |
|---|---------------------------|
| 1. Head Mathematics Tutor   | September 2020 - May 2021 |
| 2. Educational Opportunity Fund (EOF) Teaching Assistant  | Summer 2018               |
| • Assisted students with academic tutoring during assigned tutoring modules.  |                           |
| • Attended afternoon and evening tutoring modules for a six week program designated for low-income, underprivileged students. |                           |
| 3. Mathematics Tutor  | April 2018 - April 2021   |
| 4. Teaching Assistant   | January 2018 - April 2021 |
| • FRST 1103: Quantitative Reasoning   |                           |

## Mentoring Experience

- 
- |  |             |
|--|-------------|
| 2. Combinatorics and Coding Theory in the Tropics REU, Ponce, PR | Summer 2024 |
| <i>Graduate Research Mentor</i>                                  |             |
| 1. Summer@ICERM: Computational Combinatorics                     | Summer 2022 |
| <i>Graduate Research Mentor</i>                                  |             |

## Fellowships

- 
- |   |             |
|---|-------------|
| Rutgers School of Arts and Sciences (SAS) Excellence Fellowship | 2026 - 2027 |
|---|-------------|

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

## Research Experience

<b>AMS Mathematical Research Communities (MRC)</b>	June 2024
1. Research advised by Dr. Catherine Yan.	
2. Title: Primeness of Generalized Parking Functions.	
<b>East Tennessee State University, ETSU REU</b>	June - August 2020
1. Research advised by Dr. Fernando Piñero.	
2. Title: Minimum Rank of Regular Bipartite Graphs.	
<b>East Tennessee State University, ETSU REU</b>	June - August 2020
1. Research advised by Dr. Anant Godbole.	
2. Title: Involution Derangement Graphs.	
<b>Stockton University</b>	March - November 2020
1. Research advised by Dr. Bradley Forrest.	
2. Title: Nonisomorphic Trees and their Chromatic Symmetric Function.	
<b>Mathematical Sciences Research Institute, MSRI-UP</b>	June - July 2019
1. Research advised by Dr. Pamela E. Harris.	
2. Title: On Kostant's weight $q$ -multiplicity formula for $\mathfrak{sl}_4(\mathbb{C})$ . AAECC (2020).	

## Research Publications

6. *Primeness of generalized parking functions*, with Sam Armon, Joanne Beckford, Dillon Hanson, Naomi Krawzik, Olya Mandelshtam, and Catherine Yan. Submitted.  
<https://arxiv.org/abs/2410.22232>.
5. *Pullback parking functions*, with Jennifer Elder, Pamela E. Harris, Lybitina Koene, Ilana Lavene, and Molly Oldham. Submitted for double blind review.
4. *Parking functions with a fixed set of lucky cars*, with Pamela E. Harris. Submitted.  
<https://arxiv.org/abs/2410.08057>.
3. *A guide to the risk-averse gambler and resolving the St. Petersburg paradox once and for all*, with Doron Zeilberger. The College of Mathematics Journal (2024).  
<https://doi.org/10.1080/07468342.2024.2305103>.
2. *Repetitions of Pak-Stanley labels in  $G$ -Shi arrangements*, with Cara Bennett, Ava Mock, Gordon Rojas Kirby, and Robin Truax. Discrete Mathematics Vol. 347, No. 9 (2024).  
<https://doi.org/10.1016/j.disc.2024.114064>
1. *On Kostant's weight  $q$ -multiplicity formula for  $\mathfrak{sl}_4(\mathbb{C})$* , with Rebecca E. Garcia, Pamela E. Harris, Marissa Loving, David Melendez, Joseph Rennie, Gordon Rojas Kirby, and Daniel Tinoco. Applicable Algebra in Engineering, Communication and Computing (AAECC) Vol. 33, pages 353-418 (2022). <https://doi.org/10.1007/s00200-020-00454-8>

## Expository Papers

1. *How many dice rolls would it take to reach your favorite kind of number?*, with Doron Zeilberger. Maple Transactions Vol 3, No. 3, Article 15953 (2023).  
<https://doi.org/10.5206/mt.v3i3.15953>.

## Talks and Presentations

---

### Research Talks

12. Joint Mathematics Meetings, Special Session on MRC Algebraic Combinatorics, January 2025  
*Primeness of Vector Parking Functions*
11. AMS Central Sectional Meeting, Special Session, September 2024  
*The G-Shi Arrangement: Pak-Stanley Labels and Games on Paths*
10. SIAM Linear Algebra Conference, Graphs Contributed Presentation, May 2024  
*From Linear Algebra to Graph Theory: Minimum Rank of Regular Bipartite Graphs*
9. Joint Math Meetings, Special Session on The EDGE Program, January 2024  
*How Many Dice Rolls Would It Take to Hit Your Favorite Kind of Number?*
8. Moravian College, Student Mathematics Conference, February 2021  
*Minimum Rank of Regular Bipartite Graphs*
7. Joint Math Meetings, Special Session on Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, January 2021  
*Minimum Rank of Regular Bipartite Graphs*
6. Canadian Mathematical Society Winter Meeting, Algebraic Combinatorixx (Women in AC), December 2020  
*Minimum Rank of Regular Bipartite Graphs*
5. The Ohio State University, Young Mathematicians Conference, August 2020  
*Involution Derangement Graphs*
4. Clemson University, South Carolina, REU Conference, July 2020  
*Involution Derangement Graphs*
3. Moravian College, Student Mathematics Conference, February 2020  
*Closed formulas for Kostant's Partition Function for  $sl_4(\mathbb{C})$*
2. Dalhousie University, Canada, Combinatorial Algebra meets Algebraic Combinatorics, January 2020  
*Geometric Constructions for Lie Algebra Type  $A_3$*
1. Mathematical Sciences Research Institute, MSRI, Berkeley, CA, July 2019  
*The  $q$ -Analog of Kostant's Weight Multiplicity Formula for  $sl_4(\mathbb{C})$*

### Colloquium and Seminar Talks

8. The College of New Jersey, Mathematics and Statistics Colloquium, October 2023  
*The Power of Computation*
7. Rutgers University, Graduate Pizza Seminar, November 2023  
*The Chip-firing Game and More*
6. Stockton University, Mathematics Seminar, September 2023  
*The G-Shi Arrangement: Pak-Stanley Labels and Games on Paths*
5. Berkeley University, Combinatorics Seminar, March 2023  
*The G-Shi Arrangement: Pak-Stanley Labels and Games on Paths*
4. Stockton University, Mathematics Seminar, October 2022  
*Introduction to chip-firing*
3. Stockton University, Mathematics Seminar, November 2020  
*Chromatic Symmetric Function of Trees*
2. Stockton University, Mathematics Seminar, March 2020

### *Geometric Constructions for Lie Algebra Type $A_3$*

1. Stockton University, Mathematics Seminar, October 2019  
*My Research Experience working with Combinatorics and Discrete Math*

### **Research Poster Presentations**

2. Colorado Convention Center, Joint Math Meetings, January 2020  
*Weyl alternation sets for  $\mathfrak{sl}_4(\mathbb{C})$*
1. The Hawaii Convention Center, SACNAS Conference, November 2019  
*Weyl alternation sets for  $\mathfrak{sl}_4(\mathbb{C})$*

### **Grants and Other Funding**

- 
- |   |               |
|---|---------------|
| 7. SIAM Student Travel Award (\$800)  | May 2024      |
| 6. Mathematically Gifted and Black Grant #00000057 (\$350)                  | March 2024    |
| 5. Rutgers University <a href="#">SGS</a> Research & Travel Award (\$1,000) | 2023 - 2024   |
| 4. FoCM Conference Travel - NSF Grant DMS #2232812 (\$1,900)                | June 2023     |
| 3. Mathematically Gifted and Black Grant #00000039 (\$500)                  | June 2023     |
| 2. Stockton University REU (\$1,000)  | December 2019 |
| 1. Stockton Student Travel Fund (\$1,250)                                   | October 2019  |

### **Awards and Honors**

- 
- |  |             |
|--|-------------|
| <a href="#">AAECC</a> Best Paper Award of 2022   | 2023        |
| Awarded for publication <a href="#">#1</a> : <i>On Kostant's weight <math>q</math>-multiplicity formula for <math>\mathfrak{sl}_4(\mathbb{C})</math></i> |             |
| Princeton Prospective PhD Preview (P3) Program - Honorific Mention   | 2020        |
| Stockton University Foundation Scholarship   | 2019 - 2021 |
| Math Alliance Scholar  | 2019 - 2021 |
| Hispanic Fund Scholarship  | 2019 - 2021 |
| Dean's List  | 2017 - 2021 |

### **Writing Contributions to the Profession**

- 
9. [Empowering Future Leaders](#) in Applied Mathematics: The AMIGAs Program, with T. Azevedo, D. Beckelhymer, J. Jones, D. Galan Covarrubias, and A. Singhal. SIAM News Blog, November 3, 2023.
  8. [AMIGAs' Impact: Computation, Collaboration, Community](#) ( $C^3$ ), with T. Azevedo, D. Beckelhymer, J. Jones, D. Galan Covarrubias, and A. Singhal. AWM Newsletter, Vol. 53, No. 6, November/December 2023, p. 25-27.
  7. [Questions to Ask](#) to Identify a Supportive Graduate Program as a Woman or Gender Minority in Math, with B. Gelb, K. Beck, J. Hamlin, H. Mahmoudian, N. Malawo, and R. Whitman. Math Values. April 12, 2023.
  6. [A model for a one-hour workshop on mentoring](#), with P. E. Harris, Z. Markman, A. Mock, E. J. Pabón Cancel, A. Verga, and S. Wang. MAA FOCUS, Vol. 41, No. 1, February/March 2023, p. 18-21.
  5. [Ten Tips to Being Productive Online for Students - and Everyone](#). Math Values. February 25, 2021.
  4. [Supporting math majors and grad students in the time of pandemic](#), with P. E. Harris, and G. Marquez, e-Mentoring Network in the Mathematical Sciences-connecting students and mentors. AMS blogs. January 26, 2021.

3. [Networking Basics for Math Undergrads](#), with J. Beckford, A. Christensen, P. E. Harris, 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](#), with M. Cortez, M. Gutierrez, P. E. Harris, B. Keene-Gomez, A. Minino, A. Prieto Langarica, K. Tesfaye, and Stephanie, e-Mentoring Network in the Mathematical Sciences-connecting students and mentors. AMS blogs. May 04, 2020.
1. [Bank of REU/Grad Fair Questions](#), with E. Torres Davila, e-Mentoring Network in the Mathematical Sciences-connecting students and mentors. AMS blogs. January 24, 2019.

## Professional Development

---

### Workshops

- Workshop leader: “How to Create your Professional Website,” The University of Puerto Rico at Ponce, July 2024
- Workshop leader: “CV Writing Workshop,” The University of Puerto Rico at Ponce, July 2024

### Panels

- Online Fall Graduate School fair Kickoff Panel, AMS, October 2024  
*Panelist*
- Current and Recent Graduate Student Perspectives Panel, GROW Conference, Columbia University, September 2024  
*Panelist*
- Stockton University Alumni Panel, September 2024  
*Panelist*
- Graduate School Workshop: Funding and Fellowships Panel, The Women+ of Color Project, October 2022  
*Panelist*
- Graduate School Panel, Summer@ICERM, June 2022  
*Panelist*
- Undergraduate Research Student Panel, Professional Development Workshop, Center for Undergraduate Research in Mathematics, June 2022  
*Panelist*
- YSU Beginning Undergraduates’ Mathematical research Preparation (BUMP) Panel, Youngstown State University, May 2022  
*Panelist*
- Current Issues: What can we do to support math majors and grad students in the time of pandemic?, AMS Panel Session on Education, Joint Math Meetings, January 2021  
*Panelist*
- Student Panel, IMA/Math Alliance Workshop, University of Minnesota, July 2020  
*Panelist*

- Educational Opportunity Fund (EOF), Stockton University, July 2020  
*Panelist*

## Service and Outreach

---

- *Organizer*
  - Co-organizer, Experimental Mathematics Seminar, Rutgers University, Fall 2024 - 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, Mathematical Sciences Research Institute (MSRI), March 2023.  
Title: Mentoring Experiences Through the Lens of a Mentee.
- *Co-founder and Co-organizer* of the EDGE for Women Webinar Series, EDGE Foundation, 2023 - Present.
- *Committee Member*, Department of Mathematics Climate Committee, Rutgers University, 2023 - 2024.
- *Facilitator/Host*, Cafe Con Leche, Research Talk hosted by Latinxs and Hispanics in the Mathematical Sciences, March 2022.
- *Co-founder and Co-president* of the Stockton Women in Math (SWIM), AWM Chapter, September 2020 - May 2021.
- *Volunteer*, Networking/Speaker Series, Summer Math and Science Honors Academy (SMASH), July 2020.
- *Volunteer*, Homework Completion Program, Atlantic City Library, NJ, March 2020.
- *Volunteer*, Networking/Speaker Series, Summer Math and Science Honors Academy (SMASH), July 2019.
- *Proctor*, High School Math Mayhem Competition, Stockton University, April 2019.
- *Service-Learning Coordinator* of the Alliance of Educational Opportunity Fund (EOF) Students of NJ, September 2019 - May 2020.

## Professional Activities

---

### Summer Schools

Applied Math skills Improvement for Grad studies (AMIGAs) - IPAM	July 2023
Algebraic Methods in Combinatorics - UIUC	June 2023
Graph Coloring - UIUC	May 2023

### Workshops Participation

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 (OPAC) - UMN	May 2022
The Women of Color Project - Harvard University	October 2020
IMA/Math Alliance Workshop on Career Paths - UMN	July 2020
Modern Math Workshop - MSRI	October 2019

## Programs

Latinas Achieve in STEM (LaSTEM) February - April 2021

- This 7-week program was offered to 5 undergraduate Latinas interested in pursuing careers in STEM.
- As one of the projects, we created a [website](#) which is showcased in the Student Transition Programs at Stockton University.

## Memberships

Society for Industrial and Applied Mathematics (SIAM)	January 2024 - December 2025
Association for Women in Mathematics (AWM)	July 2020 - July 2021
American Statistical Association (ASA)	November 2019 - November 2020
Pi Mu Epsilon (Member, 2019-2020 Secretary)	September 2019 - May 2021
Advancement of Chicanos/Hispanics and Native Americans in Science, (SACNAS)	July 2019 - Present

## Skills

### 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.