Lucy Martinez

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Curriculum Vitae

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

AWARDS AND FELLOWSHIPS

Fellowships

- **Rutgers School of Arts and Sciences Excellence Fellowship**,
  Rutgers University   (2026 - 2027)

- **National Science Foundation (NSF) Graduate Research Fellowship**   (2023 - 2026)
  Awarded in 2021

- **Rutgers School of Arts and Sciences Excellence Fellowship**,
  Rutgers University   (2022 - 2023)

- **Rutgers School of Graduate Studies Dean's Fellowship**   (2021 - 2022)
  Awarded only to a limited number of incoming students who demonstrate outstanding qualifications

Awards and Grants

- **MAA Tensor Women & Mathematics Grants** ($5,947.20)   (2025 - 2026)
  This grants supports the EDGE Webinar.

- **Joel Lebowitz Fellowship**, Rutgers University ($2,500)   (July 2025)
  Awarded to support research during the summer

- **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)   (May 2024)

- **Dr. Sylvia T. Bozeman Predoctoral Fellowship** ($350),
  Mathematically Gifted and Black   (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**, NSF Grant DMS #2232812 ($1,900)   (June 2023)

- **Dr. Sylvia T. Bozeman Predoctoral Fellowship** ($500),
  Mathematically Gifted and Black (June 2023)

- **Princeton Prospective PhD Preview Program** - Honorific Mention (2020)
  A nationally recognized program that focuses on engaging scholars from diverse academic, research, and non-traditional experiences around the path to the Ph.D.

- **High Impact Practices Scholarship**, Stockton University ($500) (December 2020)

- **Stockton University REU Award** ($1,000) (December 2019)
  This program provides financial support for undergraduates engaging in research under faculty supervision

- **Stockton Student Travel Fund** ($1,250) (October 2019)

- **Stockton University Foundation Scholarship** ($5,180) (2019 - 2021)
  A robust merit-based award program comprised of approximately 200 scholarships

- **Math Alliance Scholar** (2019 - 2021)

- **Hispanic Fund Scholarship** (2019 - 2021)

RESEARCH PUBLICATIONS

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

Practicum for Undergraduate MAthematicians (PUMA), IPAM (April 2024)
Graduate teaching assistant for three 1-hour problem sessions on introductory topics in matroid theory

Rutgers University

- Teaching Assistant
Responsibilities: review sessions for multiple sections of 30 students, grade exams, grade quizzes, and hold office hours.

  - Math 151: Calculus I for the Mathematical and Physical Sciences (Fall 2024)

- Grader

  - CS 521: Linear Programming - Graduate Course (Fall 2023)

- Academic Success Mentor (Fall 2022 - Spring 2024)
Provided math tutoring and mentorship support through one-on-one sessions for students

Stockton University

- Head Mathematics Tutor (Fall 2020 - Spring 2021)

- Teaching Assistant
Responsibilities: review sessions for sections of 25 students.

  - FRST 1103: Quantitative Reasoning (Spring 2018 - Spring 2021)

- Educational Opportunity Fund Teaching Assistant (Summer 2018)
Assisted students with tutoring during assigned tutoring modules and attended afternoon and evening tutoring modules for a six-week program designated for low-income students

- Math Tutor (Spring 2018 - Spring 2021)
Tutor for a variety of courses from Calculus I to Abstract Algebra

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 (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 (MSRI) (July 2019)

Contributed Talks

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

  Graphs Contributed Session, SIAM Linear Algebra Conference, Sorbonne Université (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)

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

Workshops

- Workshop leader: "How to Create your Professional Website"
  - AWM Chapter, Rutgers University (March 2025)
  - The University of Puerto Rico at Ponce (July 2024)

- Workshop leader: "CV Writing Workshop"
  - AWM Chapter, Rutgers University (November 2024)
  - The University of Puerto Rico at Ponce (July 2024)

Panels

- Undergraduate and Graduate Students, IGEN-Math Listening and Learning Session (February 2025)
  Panelist

- Online Fall Graduate School fair Kickoff Panel, AMS (October 2024)
  Panelist

- Current and Recent Graduate Student Perspectives Panel, GROW Conference (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

- Beginning Undergraduates' Mathematical research Preparation 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?, JMM, AMS Panel Session on Education   (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, Undergraduate Special Session, AWM Research Symposium   (May 2025)
  - Co-organizer, Experimental Mathematics Seminar, Rutgers University   (Fall 2024 - Present)
  - Co-organizer, EDGE for Women Webinar Series, EDGE Foundation   (Fall 2023 - Present)

- *Mentoring Activities*
  - Speaker, Our Stories Session, Fourth Annual OURFA^{2}M^2 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* of the EDGE for Women Webinar Series, EDGE Foundation   (2023)

- *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,
  AWM Chapter   (Fall 2020 - Spring 2021)

- *Volunteer*, Networking/Speaker Series, Summer Math and Science Honors Academy   (July 2020)

- *Volunteer*, Homework Completion Program, Atlantic City Library, NJ (March 2020)

- *Volunteer*, Networking/Speaker Series, Summer Math and Science Honors Academy (July 2019)

- *Proctor*, High School Math Mayhem Competition, Stockton University (April 2019)

- *Service-Learning Coordinator* of the Alliance of
  Educational Opportunity Fund Students of NJ (Fall 2019 - Spring 2020)

RESEARCH SCHOOL AND WORKSHOP PARTICIPATION

Research Schools

- 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, University of Minnesota Twin Cities (May 2022)

- The Women of Color Project, Harvard University (October 2020)

- IMA/Math Alliance Workshop on Career Paths, University of Minnesota 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.

MEMBERSHIPS

- Society for Industrial and Applied Mathematics (SIAM) (Jan. 2024 - Dec. 2025)

- Association for Women in Mathematics (AWM) (July 2020 - July 2021)

- American Statistical Association (ASA) (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.