Omayra Y. Ortega

1801 E. Cotati Ave, Rohnert Park, CA 94928

www.omayraortega.com/ ortegao@sonoma.edu (707) 664 2139

Educational Background

2008 Ph.D. in Applied Mathematics and Computational Sciences, University of Iowa, IA
Title: Models of Rotavirus with Coinfection and Vaccination.
Thesis Advisors: Dr. Herbert Hethcote and Dr. Tong Li
2005 M.S. in Applied Mathematics and Computational Sciences, University of Iowa, Iowa City, IA
2005 Masters of Public Health, University of Iowa, Iowa City, IA
2001 B.A. in Pure Mathematics, Pomona College, Claremont, CA
2001 B.A. in Music, Pomona College, Claremont, CA
1996 Diploma, Milton Academy, Milton, MA

Professional Experience

Summer 2025	Summer Research Director, MSRI-UP, Simon-Laufer Mathematical Sciences Institute, Berkeley, CA. Directed 18 undergraduates, 2 graduate students, and 1 post-doc in 6 distinct research projects in applications of Mathematics, Statistics, and Data Science to Quantitative Justice.
Fall 2024	Research Fellow, Institute for Pure and Applied Mathematics (IPAM) Mathematics of Intelligences Program during the Fall 2024, Los Angeles, CA.
Fall 2023	Research Fellow, Simon-Laufer Mathematics Institute (SLMath) Algorithms, Fairness, and Equity Program during the Fall 2023 semester, Berkeley, CA. Learns about recent advances in the study of gerrymandering and fair machine learning. Devotes focused time mastering techniques from Natural Language Processing (NLP).
2022 – 2023	Research Fellow, The Institute for Computational and Experimental Research in Mathematics (ICERM) Data Science and Social Justice: Networks, Policy, and Education, Providence, RI. Collaborates with other fellows in residence on critical research at the intersection of education, data science, sociology, and mathematics.
2022 – present	Associate Professor, Sonoma State University, Rohnert Park, CA. Teach various courses in mathematics and statistics while advising undergraduates and serving on departmental and university-wide committees.
2022 – 2025	Assistant Dean of Research and Internships, Sonoma State University, Rohnert Park, CA. Develop and maintain relationships bridging STEM faculty at Sonoma State University and community partners to create and increase internship opportunities for SSU students studying STEM while developing and increasing the capacity for SSU faculty to conduct research.

2022 – 2023	SSU STEM-NET Fellow, California State University System, Long Beach, CA. Promotes research, community building and innovative educational ideas across the CSU university system and provides students the skills they need to excel in the workforce of the future and meet the needs of California's innovative and evolving economy.
2022 – 2023	SQuAIR Faculty Representative, Sonoma State University, Rohnert Park, CA. Export, review and clean SSU Canvas Data feed and provide analysis and recommendations to both the SSU Center for Teaching & Educational Technology (CTET) and the CSU Chancellor's office SQuAIR (Student Quality Assurance Impact Research) team to evaluate the impact of course redesign changes in a pre/post within subjects design for faculty participating in a learning community on redeveloping course content in high-DFW courses co-sponsored with CTET and the Academic Programs Office.
2021 – 2024	President, National Association of Mathematicians (NAM) Oversaw non-profit organization with a mission to promote excellence in mathematical research and teaching while developing mathematical talent among underrepresented minorities, especially those from the African diaspora, while maintaining NAM's strong roots to the nation's Historically Black Colleges and Universities.
2018 – 2022	Assistant Professor, Sonoma State University, Rohnert Park, CA. Teach various courses in mathematics and statistics while advising undergraduates and serving on departmental and university-wide committees.
2018 – 2021	Editor, National Association of Mathematicians (NAM). Chaired the NAM Publications and Publicity Committee which oversaw the seasonal publication of the NAM Newsletter, maintained the newsletter and advertisement sections of the website, edited and published the Proceedings of the Golden Anniversary Celebration, collaborated on the #BlackinMathWeek Twitter campaign, and facilitated the NAM contributions to the MAA Math Values Blog.
2017 – 2018	Visiting Assistant Professor, Pomona College. Dr. Ortega taught a variety of courses in mathematics while supervising undergraduate student theses and organizing various STEM outreach activities in the community.
Sum 2017 – 2022	Visiting Faculty, Rocky Mountain Sustainability & Science Network (RMSSN), Colorado State University. Dr. Ortega served as research advisor to students working on various projects in ecology, sustainability, and natural resource management.
2015 – 2017	Healthcare Analyst, Data Science & Advanced Analytics Team, Health Services Advisory Group. Dr. Ortega conducted accurate and verified descriptive and statistical analysis of patterns of care and outcomes, validated results from other analysts, and prepared reports for dissemination and presentations. She conducted literature searches/reviews, designed statistical analysis plans, and defined case selection criteria and variable parameters using methods from data science.

2015	Fulbright-Hays Fellow – Dr. Ortega facilitated educator workshops and exchanges at various schools throughout the country of Ghana with a group of 13 other educators from the state of Arizona. Created new coursework, lesson plans, and professional development sessions for Arizona K-12 schoolteachers based on the experience in Ghana to cultivate international exchange and global awareness in Ghanaian and Arizonan classrooms.
2014 – 2015	Super Mentor, BUILDing Scholars Grant. The "Super Mentors" program pairs 4 faculty from Research Partner Institutions with demonstrated success in extramural funding and mentoring undergraduate students in research with 4 UTEP faculty or post-docs and Pipeline Partner faculty. Applicants receive one-on-one mentoring from a Super Mentor over the course of one year on their research productivity and student mentoring skills.
2014 – 2015	Data Analyst – Statistica Medica. Dr. Ortega combined data sources and personal from several organizations under the umbrella of the Irish Department of Health as well as private organizations to calculate niche prevalences for children of alcohol and drug abusers in Ireland for the National Advisory Commission on Drugs and Alcohol (NACDA- Ireland).
Summer 2014	Summer Director – Mathematical and Theoretical Biology Institute (MTBI). Dr. Ortega managed the hiring of faculty, organization of lectures, and scheduling of summer faculty for one of the premier 8-week summer residential Research Experience for Undergraduates (REU) held at Arizona State University's Tempe campus. Served as one of the Principal Investigators for the National Science Foundation Grant that supports this program.
Summer 2012	Mathematical Analysis Workshop Facilitator – Enhancing Diversity in Graduate Education (EDGE) Program for Women. Dr. Ortega facilitated the lectures, labs, and problem sets for a summer course on mathematical analysis meant to prepare young women who recently graduated from an undergraduate institution for the rigors of graduate school in mathematics. This summer program was held at Pomona College in Claremont, CA in 2012.
2009 – present	Director, Mathematical Epidemiology Research Group. Work with undergraduate students to investigate questions in mathematical epidemiology using tools from mathematics, statistics, stochastic processes, public health, and epidemiology. Students are also provided with mentoring on best practices for a successful undergraduate career, applying to graduate school, and career options. First began in 2009 at Arizona State University and continues to this day at Sonoma State University.
2008 – 2015	Assistant Professor, Arizona State University, West Campus, Phoenix, Arizona. Dr. Ortega taught PreCalculus, Brief Calculus, Mathematical Structures, and Intro & Intermediate Probability. Continued research on several aspects of rotavirus infection as well as statistical projects in students' pursuance of STEM degrees. Served on the Articulation Task Force, the New College Faculty Advisory Board, the Online Learning and Education Group, the Cultural Affairs Committee, and mentored the Black Student Union, Hispanic Honors Society, Axe Capoeira at ASU, Black Graduate Students Association (BGSA).

Summer '10-13	Instructor, Barrett Honors College, Summer Scholars Program. Dr. Ortega taught a week-long course to gifted 7th & 8th graders on the contributions of many different cultures to mathematics.
Summer 2007	Research Fellow, Arizona State University, Tempe Campus, Tempe, Arizona. Ms. Ortega continued work on rotavirus modeling and initiated projects on the dynamics driving HIV and malaria co-infection in sub-Saharan Africa.
2006 - 2008	Instructor, Arizona State University, West Campus, Phoenix, Arizona. Ms. Ortega taught two sections of Brief Calculus in the Fall, and added one section of Intro to Probability in the Spring, continued research on rotavirus modeling, and served on the committee to create a Bachelor's degree in Applied Mathematics.
2001 - 2006	Tutor, University of Iowa. Ms. Ortega taught math courses ranging from High School Algebra to Differential Equations.
Spring 2005	Research Analyst, Naval Medical Research Unit #3 (NAMRU-3), Cairo, Egypt. Ms. Ortega conducted a cost-benefit analysis of the addition of a rotavirus vaccine to the current immunization schedule in Egypt. Assisted research staff with similar public health studies and publications.
Summer 2002	Public Health Intern, The Republic of the Gambia Ministry of Health. Ms. Ortega conducted research on Water treatment and conservation, malaria transmission and prevention, and Female Genital Circumcision practices in West Africa.

Courses Taught

Introduction to Quantitative Justice
Early Start Mathematics
Pre-Calculus
Brief Calculus
Online Brief Calculus
Calculus w/ Analytical Geometry
Mathematical Structures (Intro to Proofs)
Differential Equations
SAS Programming
Statistical Consulting and Communication
Statistical Consulting, Communication, and Project Management
Introductory Statistics for Social Justice (w/Labs in R)
Elementary Applied Statistics
Linear Algebra
Introduction to Probability
Intermediate Probability
Probability
Mathematical Biology Seminar
Mathematical Analysis Seminar
Art, History, & Culture in Mathematics

Presentations

Who is the Conscience of AI?
2025 Joint Mathematics Meeting, NAM Cox-Talbot Address, Invited Plenary Speaker, Seattle, WA

The Mathematics of Mathematics (#Metamath): An Introduction & Some Examples
2025 Joint Mathematics Meeting, Invited Paper Session, Seattle, WA
2024 Experience in Math Colloquium, Invited Speaker, University of California at Santa Cruz, Virtual
2024 IPAM Mathematics of Intelligences: Workshop on Higher-Order Intelligences, University of California at Los Angeles (UCLA), Los Angeles, CA
2024 SSU Spotlight on Scholarship, Invited Speaker, Sonoma State University, Rohnert Park, CA
2024 Mathematics Colloquium, Invited Speaker, Rice University, Houston, Texas
2024 Change Maker Series, Invited Speaker, Sacramento State University, Sacramento, CA
2024 Lathisms Café Con Leche Webinar, Invited Speaker, Virtual
2024 Queer & Trans in Mathematical Analysis (QuMA), Invited Speaker, Bilbao Center for Applied Mathematics, Bilbao, Spain

STEM at a Tipping Point
2025 Joint Mathematics Meeting, Invited Paper Session, Seattle, WA
2024 National Diversity in STEM Conference, Invited Session, Society for the Advancement of Chicanos and Native Americans in Science, Phoenix, AZ
2024 CSU Symposium on Teaching and Learning, Contributed Paper session, CSU San Bernardino, CA
2023 California Mathematics Council of Community Colleges, Fall Annual Meeting, Keynote Speaker, Monterrey, CA

Play with the Changes: The Math & Art of Graceful Transitions
2024 EDGE Webinar, Invited Speaker, Virtual
2024 MAY-UP - Mathematically Advancing Young Undergraduates Program, Invited Speaker, Virtual (Georgia State University)

EDGE: The Early Years
2023 Enhancing Diversity in Graduate Education (EDGE) 25th Anniversary Celebration: Mobilizing the Power of Diversity, Session Organizer, Panel Moderator & Speaker, Bryn Mawr College, Bryn Mawr, PA

The Mathematics of Mathematics: Quantifying Inequities and Documenting Elitism in PhD-granting Mathematical Sciences Departments in the United States
2023 AWM Research Symposium, Clark Atlanta University, Atlanta, GA Invited Lecture
2024 California Learning Lab: Data Science Grand Challenge, Invited Speaker, University of California at Berkeley, Berkeley, CA

Building Community with the National Association of Mathematicians, Inc.
2023 Strengthening Community in Research Mathematics, Invited Lecturer, Claremont, CA
2023 BLASAR Conference, Invited Plenary Speaker, Virtual

Who are we Serving with our Scholarship: A Covid Model Case Study
2023 Joint Mathematics Meetings, MAA-SIAM-AMS Hrabowski-Gates-Tapia-McBay Invited Plenary Lecturer, Boston, MA
2023 MAA Golden Section Annual Meeting, Invited Keynote Lecture, Santa Rosa, CA

EDGE Women Careers in Mathematics
2023 Joint Mathematics Meetings, Invited Panelist, Boston, MA

Blackbird, Fly: The Legacy of Vivienne Malone-Mayes and African-American Women within AWM
2022 AWM Research Symposium Hybrid Panel, Invited Panelist, University of Minnesota, Minneapolis, MN

Closing the Calculus Equity Gap
2022 Just Equations / California Education Learning Labs Virtual Panel, Invited Panel Speaker

Things that Used to be Strange Are Familiar Now: Reflections on the Inevitable Evolution of Pedagogy & Scholarship
2022 Association for Women in Mathematics Social Intellectual Graduate Mathematics Activities (SIGMA) Seminar. Invited lecture. University of Connecticut. Virtual.
2021 Blackwell-Tapia Conference, Invited Lecture, Mathematical Sciences Research Institute (MSRI). Berkeley, CA

Utilizing the Language of Mathematical Models to Understand Our World
2021 Cal Poly Pomona College of Science Distinguished Lecture Series, Invited Lecture
2022 Juniata College, Invited Lecture
2022 Celebrating Blacks in the Physical Sciences Colloquium Series, UC Irvine, Invited Lecture

Understanding Mathematical Models of Coronavirus
2021 Southwestern University, Invited Lecture
2021 Fresno State and BAMM! Lecture Series, Invited Lecture
2021 CSU East Bay Mathematics Colloquium, Invited Lecture

Increasing Engagement In, and Support for, Equity Work
2021 Joint Mathematics Meetings, Invited Panel Speaker, Virtual Conference

Mathematical Modeling of Infectious Disease Dynamics
2021 ANTH 309: Health and Disease in the Past, Sonoma State University, Guest Lecturer
2019 Osher Lifelong Learning Institute, Invited Lecture, Sonoma State University, Rohnert Park, CA

Resources for Latinx K-16 students interested in STEM
2020 Barrio Logan College Institute, Invited Presentation, Virtual Conference

Exceptional Statistics: From J. Earnest Wilkins to Coronavirus Epidemiology
2020 National Association of Mathematicians Undergraduate MATHFest, J. Earnest Wilkins Lecturer (Invited Keynote Lecture), Virtual Conference

Identifying and Managing Microaggressions
2020 Joint Mathematics Meetings, Workshop Facilitator, Denver, CO
2019 Society for the Advancement of Chicanos and Native Americans in Science, Workshop Facilitator, Honolulu, HI

Equitable Examples of Math Modeling for Your Classroom
2019 Wine Country Math Teacher's Circle, Invited Lecture, Sonoma County Office of Education, Santa Rosa, CA

The Statistics Behind, "Driving While Black"
2020 Pi Mu Epsilon Ceremony, Invited Lecture, Salem State University, Salem, MA
2020 Inspiring Talks Series, Invited Lecture, Lehman College, Bronx, NY
2020 M*A*T*H Colloquium Series, Invited Lecture, Sonoma State University, Rohnert Park, CA
2019 Africana Distinguished Lecture Series, Sonoma State University, Rohnert Park, CA

47 Ways Teaching Social Justice Will Make You Rich
2019 California Mathematics Council Community Colleges 47th Annual Meeting, Invited Keynote Address, Monterey, CA

Better Social Justice through Statistics
2019 Society for the Advancement of Chicanos and Native Americans in Science, Invited Lecture, Honolulu, HI

Stochastic Model of Rotavirus Infection
2019 Distinguished Women in Math Lecture Series, San Francisco State University, San Francisco, CA

An Age-Based Stochastic Model of HPV
2016 Conference for the Exchange of Mathematical Ideas, Invited Lecture, Embry-Riddle Aeronautical University, Prescott, AZ
2014 Joint Mathematics Meetings, Oral Presentation, Baltimore, MD
2014 American Institute of Mathematics Conference on Dynamical Systems, Differential Equations, and Applications, Invited Lecture, Madrid, Spain
2013 Pacific Undergraduate Research Experience (PURE) REU program, Invited lecture, Hilo, HI

Mistakes, Mess-Ups, and Do-Overs: How To Become Your Most Awesome Self
2015 University of Wisconsin at Eau Claire Sonia Kovalevsky Day, Eau Claire, Wisconsin

The A, B, C's of Writing an AMAZING Personal Statement
2021 MESA Professional Development Meeting, Invited Lecture, Rohnert Park, CA
2019 MESA Professional Development Meeting, Invited Lecture, Rohnert Park, CA
2018 SACNAS Student Chapter Meeting, Invited Lecture, Rohnert Park, CA
2014 Society for the Advancement of Chicanos and Native Americans in Science, Oral Presentation, Los Angeles, CA

Wayfinding and other Mathematics in Traditional Pacific Islander Culture
2013 Pacific Undergraduate Research Experience (PURE) REU program, Invited lecture, Hilo, Hi

Realizing the Dream of Parity in STEM Education
2012 SUnMaRC, MAA and ArizMATYC Joint Conference, Keynote Speaker, Tucson, AZ
2012 Long Island University STEM Seminar, Invited Lecture, Brooklyn, NY

Origami and Mathematics
2012 ThInK Lecture Series, Invited Lecture, Phoenix, AZ
2011 Herberger Young Scholars Academy Lecture Series, Invited Lecture, Phoenix, AZ

A Stochastic Model of Rotavirus with Vaccination

2011 International Conference on Industrial and Applied Mathematics, Invited Lecture, BC Canada
2011 Joint Mathematics Meetings, Oral Presentation, New Orleans, LA
2010 SACNAS, Invited Oral Presentation, Anaheim, CA

A Life of Service: Using Mathematics to Serve the Community
2012 ASU-Association for Women in Mathematics, Invited Address, ASU Tempe, Tempe, AZ
2012 STEM-TRiO Invited Address, ASU West, Phoenix, AZ
2010 ASU Cross Talk Communities Connect Dialogues, ASU West, Phoenix AZ

Dynamics of Using Effective Mentoring to Promote Diversity
2010 IMA Special Workshop: Career Options for Underrepresented Groups in Mathematical Sciences, Minneapolis MN

Models of Rotavirus with Coinfection and Vaccination
2009 Joint Mathematics Meetings, Oral Presentation, AWM session, Washington D.C.
2009 First Buea International Conference on the Mathematical Sciences, Invited Oral Presentation, Buea, Cameroon

Evaluation of a Rotavirus Vaccine Program
2008 Joint Mathematics Meetings, Oral Presentation, San Diego, CA
2008 Blackwell-Tapia Conference, SAMSI, Raleigh, NC
2007 SACNAS, Invited Oral Presentation, Kansas City, MO
2007 Infinite Possibilities Conference, NC State, Raleigh, NC

Cost-Benefit Analysis of a Rotavirus Vaccination Program in Cairo, Egypt.
2007 University of Arizona Mathematical Modeling and Analysis of Populations in Biological Systems Conference in honor of Jim Cushing, Tucson, AZ
2006 AMS-MAA Joint Mathematics Meetings, San Antonio, TX
2006 SIAM Annual Meeting, Boston MA (Invited Oral Presentation)
2006 DIMACS Workshop on Facing the Challenges of Infectious Disease in Africa (Invited Presentation) Johannesburg, South Africa
2006 Blackwell-Tapia Conference, Institute for Mathematics and its Applications (IMA), Minneapolis, MN
2005 Middle Eastern Conference on Pediatric Enteric Diseases, Cairo, Egypt
2005 The University of Iowa Interdisciplinary Health Research Poster Session, Iowa City, IA

Modeling Polio Transmission: WHO's down with OPV.
2004 Banff International Research Station, Banff, Alberta, Canada

Comparisons of Parametric and Nonparametric Estimations of Invasion Rates
2003 The University of Iowa Conference on Mathematical Biology, poster session, Iowa City, IA

Professional Associations

Association for Women in Mathematics
American Association for the Advancement of Science
American Statistical Association
Benjamin Banneker Association
Mathematical Association of America

National Association of Mathematicians
Society for Industrial and Applied Mathematics
Society for the Advancement of Chicanos and Native Americans in Science

Community & Professional Service

Organizer, NAM-SIAM-AMS Special Session on Quantitative Justice, Joint Mathematics Meetings (JMM). Recruited speakers, scheduled presentations in AMS system, moderated the session introducing the nascent field of quantitative justice, defined as the application of techniques, tools and topics from various quantitative sciences in subject domains that are derived from the social sciences with the goal of promoting social justice. JMM San Francisco, CA 2024 and JMM Seattle 2025.

Advisory Board Member, California Learning Lab Grand Data Science Challenge Grants. Advisory Board utilizes its diverse expertise to guide and enhance project development, ensuring strategic alignment and impactful outcomes. The advisory board fosters innovation in teaching and learning, empowering higher education institutions to implement cutting-edge practices in data science education. 2025- present

School of Science and Tech Senator, Sonoma State Academic Senate, Sonoma State University. Served on the Academic Senate, the governing body of the faculty, as a representative from the School of Science and Technology. The committees of the Academic Senate oversee the curriculum, academic policies, the reappointment, tenure and promotion of faculty and it is the official faculty body to provide opinion on matters affecting the University. Spring 2024

Lead co-Organizer, Workshop on the Mathematics of Quantitative Justice, May 8-9, 2025, virtual. Planned and executed keynotes, lectures, discussions, and working groups for 2-day virtual conference. The overarching goal of the Workshop on the Mathematics of Quantitative Justice (f.k.a. the Workshop on Mathematics and Racial Justice) was to explore the role that mathematics plays in today's movement for racial justice. This workshop brought together mathematicians, statisticians, computer scientists, and STEM educators as well as members of the general public interested in using the tools of these disciplines to critically examine and eradicate racial disparities in society. The themes for this year's workshop are 1) science and technology studies, 2) law and policy, and 3) mathematics education. 2023-2025.

Organizer, EDGE: The First Five Years, Professional Panel at the 2023 EDGE 25th Anniversary Celebration, Bryn Mawr College, Bryn Mawr, PA. Recruited panel members, scheduled and facilitated rehearsals Zoom meetings, moderated the panel on the day of the celebration. Fall 2023

President's DEI Advisory Council, Sonoma State University. The council is charged with promoting policies and practices that increase opportunities, advance social justice, and create equitable experiences for the Sonoma State University community. The council's success depends in part on strong representation and engagement from students, faculty, and staff. This council provides strategic advising to the President of the university on diversity and equity-related activities, ensuring that all programs and activities reflect campus priorities. 2022- 2024

Steering Committee, Cal-Bridge. Recruit undergraduate applicants from the California State University and University of California system, review applications, conduct interviews, choose participants, and recruit mentors for the Cal-Bridge program. Cal-Bridge creates opportunities for historically underrepresented groups, including women, underrepresented minorities (URMs), members of the

LGBTQ+ community, those with disabilities, and first-generation students, to participate and advance in STEM fields including physics, astronomy, computer science, and computer engineering, to increase their numbers in PhD programs targeting our UC and other partner institutions. 2021-present

Co-Organizer, Data Science and Social Justice: Networks, Policy, and Education Summer Program. Planned and executed summer research program that will bring together computational and applied mathematics, researchers with expertise and interests in network science and analysis, open science and data, and computer science to work collaboratively on ways to increase interest, research training, and capacity for data science for social justice, and to develop both quantitative and qualitative approaches to those professional practices that call for community engagement, critical inquiry, and interdisciplinary cooperation. Held at the Institute for Computational & Experimental Research in Mathematics (ICERM) summer 2022 & 2023, Providence, Rhode Island.

Organizer, Special Session: Blackbird, Fly: The Legacy of Vivienne Malone-Mayes and African-American Women within AWM. This session will focus on the legacy of Vivienne Malone-Mayes (February 10, 1932 – June 9, 1995) in particular, and the impact of African American women within AWM in general. Malone-Mayes was the first African-American to serve on the AWM Executive Committee. To date, there have only been eleven African Americans to serve on the AWM Executive Committee. To be held at the Association for Women in Mathematics (AWM) 2022 Research Symposium, Institute for Mathematics & Its Applications (IMA), Minneapolis, MN.

Lead co-Organizer, Mathematical Sciences Research Institute (MSRI) Workshop on Mathematics + Racial Justice, virtual June 9-18, 2021 (future instances planned for 2025, 2028). Planned and executed with keynotes, lectures, discussions, and working groups for 6-day virtual conference. The overarching goal of the Workshop on Mathematics and Racial Justice was to explore the role that mathematics plays in today's movement for racial justice. This workshop brought together mathematicians, statisticians, computer scientists, and STEM educators as well as members of the general public interested in using the tools of these disciplines to critically examine and eradicate racial disparities in society. Sessions included: Bias in Algorithms and Technology; Fair Division, Allocation, and Representation; Public Health Disparities; and Racial Inequities in Mathematics Education.

Reviewer, Association for Women in Mathematics EvenQuads Deck 1. Wrote and reviewed biography text for the EvenQuads: Celebrating Women in Math card deck issued by the AWM in 2021. EvenQuads started as a way to commemorate the 50th anniversary of the Association for Women in Mathematics. Women have been contributing to the field of mathematics for far longer—from research to education, pure mathematics to applied mathematics, academia to industry, historical times to the modern day, women have distinguished themselves in advancing the field of mathematics. These cards are but a small way to acknowledge the untold achievements of these women—their legacies have been silent for far too long.

Faculty Advisor, SACNAS SeaWolves (Society for the Advancement of Chicanos and Native Americans in Science – Student Chapter). Assist SACNAS Student Chapter in chartering, daily operations, programming, and attending conferences. Sonoma State University 2020-present

Mentor, Ronald E. McNair Scholars. Supervise several undergraduate McNair scholars at Sonoma State University in research each year and advised them in their personal and academic career. Sonoma State University 2018-present

Organizer, Association for Women in Mathematics (AWM) 2019 Research Symposium. Planned and orchestrated poster sessions, scientific symposia, plenary speakers, funding, and a banquet for over 300

attendees. The research symposium showcased research from women across the mathematical sciences working in academia, government and industry, as well as featured the work of women from across the career spectrum. Rice University, Houston, TX. 2019.

Organizer, Sonia Kovalevsky High School Mathematics Day, Sonoma State University. Coordinated volunteers, wrote grant proposals, and coordinated a day of mathematics and mentoring for up to 150 high school-age young women at Sonoma State University's campus. 2019-present

Volunteer, Cat Care Program, Sonoma County Humane Society. Provide intermittent care for cats up for adoption at the Santa Rosa, CA location of the Sonoma County Humane Society. 2018-2024.

Organizer, Sonia Kovalevsky High School Mathematics Day, Pomona College. Coordinated volunteers from Pomona College, Cal State Fullerton, and Cal Poly Pomona; wrote grant proposals; and coordinated a day of mathematics and mentoring for 100 high school-age young women at Pomona College's campus. 2018.

Chair, Publicity and Publications Committee, National Association of Mathematicians (NAM). Sit on the board of NAM. Serve as editor-in-chief of NAM newsletter. Solicit news articles from membership; solicit advertisements; write, edit and format articles; typeset, print, and mail newsletter; update electronic version of newsletter online, and maintain newsletter budget. Oversee the publication of research journal publications and proceedings. Maintain the NAM website. 2018 – 2021.

Member, California Alliance for Data Science Education (CADSE). Collaborated with educators to strengthen and expand data science programs across California's community colleges and four-year institutions. Participate in bi-annual meetings that bring together schools developing new data science programs and those with established ones, fostering knowledge-sharing and best practices. Through this work, members help build pathways that support student success and workforce readiness in data science. 2017 – present

Member, Data Science at the Claremont Colleges Consortium. Served as a member of the Claremont Colleges Data Science Consortium, collaborating with faculty and academic leaders to shape the future of data science education. Contributed to discussions and planning efforts focused on creating and envisioning an interdisciplinary data science degree between the 7 colleges in the Claremont College Consortium. Supported the development of curriculum pathways to align with emerging academic and workforce needs in data science and existing resources at the Claremont Colleges. 2017-2018.

Committee Member, Association for Women in Mathematics, Membership Committee. Established programs that will increase AWM's visibility in the scientific community and increase the size of the membership. 2011-2014.

Organizer & Moderator, "I Graduated! Now What?" Professional Development session at the 2012 Society for the Advancement of Chicanos and Native Americans in Science Annual Conference, Seattle, WA

Consultant & Mentor, PBS SciGirls episode "Bee Haven," Aided production team in formulation of theme and mathematical activities for SciGirls PBS television show featuring all-Latina SciGirls cast in Phoenix, AZ. Featured in film where I mentor 4 Latina middle school girls as they used math to display and present data to establish if they could introduce a bee hive at a local farm collective near their high school. 2011- 2012, 2017-2018

Community Advisor, Aid to the Adoption of Special Kids (AASK) Special Friends program. The Special Friends program serves to match youth in foster care with committed adults who can serve as role models, advocates, mentors, and friends. 2010-2017.

Organizer and Moderator, Project NExT Organizing REUs/summer programs and finding $$ session at 2010 MAA MathFest, Pittsburg, PA. Panelist include: Patrick Bahls - University of North Carolina Asheville, Neil Calkin - Clemson University, Laura Taalman - James Madison University.

Organizing Committee, Infinite Possibilities Conference. Established theme, coordinated registration and publicity for the 2010 & 2015 Infinite Possibilities Conference for women of color in the mathematical and statistical sciences. UCLA and the Institute for Pure and Applied Mathematics (IPAM) 2010, Oregon State University 2015, Institute for Mathematical & Statistical Innovation (IMSI) University of Chicago, Chicago, IL 2025.

Organizer, National Association of Math Circles Conference, Tempe, AZ. Helped to organize all aspects of the 2010 NAMC conference on the Tempe campus with major support from the Mathematical Sciences Research Institute (MSRI).

Director, Mathematical Epidemiology Research Group. Recruit and manage approximately 4-8 undergraduate students to conduct research in mathematical epidemiology. Student are taught to conduct literature searches, define a research question, draft and test a hypothesis, write a research paper, create and give oral and poster presentations. 2009-present

Committee Member, Association for Women in Mathematics, Mentor Match Committee. Organize the website and marketing materials to advertise the AWM Mentor Match program. Select appropriate Mentor/Mentee matches on a rolling basis as the applications to mentor and requests for mentor are received throughout the year. 2009-2016, 2018-present.

Organizer, Sonia Kovalevsky High School Mathematics Day, Arizona State University. Coordinated volunteers, wrote grant proposals, and coordinated a day of mathematics and mentoring for 150 high school-age young women at the Arizona State University's West campus. 2008 – 2015.

Organizer and Moderator, Project NExT Maintaining Your Research Agenda session at 2010 Joint Mathematics Meetings, San Francisco, CA. Colin Adams - Williams College, Victor Moll – Tulane University, and Bonita A. Lawrence – Marshall University

Organizer, Sonia Kovalevsky High School Mathematics Day, University of Iowa. Coordinated volunteers, wrote grant proposals, and coordinated a day of mathematics and mentoring for 200 high school-age young women at the University of Iowa, 2006.

Research Interests

Infectious Disease Epidemiology
Public Health
Mathematical and Computational Biology
Differential Equations
Stochastic Processes
Biostatistics
Data Science
Health Disparities

Ethnomathematics
The Participation of Women and Marginalized People in the Sciences

Computer Languages/Software

Microsoft Office Suite, Google Suite, Mathematica, Maple, Matlab, SAS, R, Camtasia, LaTex.

Creative Products

Buckmire, R., Diaz Eaton, C., Hibdon Jr, J.E., Kauba, J., Lewis, D.., Ortega, O., Pabon, J., Roca, R., Vindas-Melendez, A.R, Zhang, S. "Quantifying and Documenting Gender-Based Inequalities in the Mathematical Sciences in the United States" which will appear in the Advances in Data Science (Volume 37) https://doi.org/10.1007/978-3-031-87804-6_16 edited by Harlin Lee and Cristina Garcia-Cardona published by Springer in August 2025 as chapter 16

Gutiérrez, R., Ortega, O., Lahme, B., and Ford, B. (in press). "I was scared and excited to do the work": Rehumanizing mathematics through lesson study at a Latine-Serving Institution. International Journal for Lesson and Learning Studies. Accepted with minor revisions 06/2025

Buckmire, R., Hibdon Jr, J.E., Lewis, D.., Ortega, O., Pabon, J., Roca, R., Vindas-Melendez, A.R. "The Mathematics of Mathematics: Using Mathematics and Data Science to Analyze the Mathematical Sciences Community and Enhance Social Justice" . La Matematica Vol 4 Issue 1 (2025). https://doi.org/10.1007/s44007-024-00146-6

Hibdon Jr, J., Ortega, O. Language Barrier a Bar to Good Health For Many. Here's What RI Can Do. Op Ed in Commentary Section of The Providence Journal. Sunday August 13, 2023.
Official link requires subscription to Providence Journal:
Unofficial link to downloaded copy: https://drive.google.com/file/d/1dvFoJiOiE2yyAhol4Enis7cxxI-rqv58/view?usp=drive_link

Buckmire, R., Diaz Eaton, C., Hibdon Jr, J.E., Kinnaird, K.M., Lewis, D. Libertini, J., Ortega, O., Roca, R., Vindas-Melendez, A.R. "On definitions of 'mathematician'" Journal of Humanistic Mathematics Vol 13 Issue 2 (July 2023) https://scholarship.claremont.edu/jhm/vol13/iss2/4/

Lamb, E., Ortega, O., Wilson, R. "The Role of Mathematics in Today's Movement for Social Justice" AMS Notices Vol 70 No 2 February 2023 pp 319-324
https://community.ams.org/journals/notices/202302/noti2616/noti2616.html?adat=February%202023&trk=2616&galt=none&cat=commentary&pdfissue=202302&pdffile=rnoti-p319.pdf

Agusto, F., Erovenko, I.V., Fulk, A., Abu-Saymeh, Q., Romero-Alvarez D., Ponce, J., Sindi, S., Ortega, O., Saint Onge, J.M.,Townsend Peterson, A. "To isolate or not to isolate: The impact of changing behavior on COVID-19 transmission" BMC Public Health Journal, 20 January 2022, 22:138. https://doi.org/10.1186/s12889-021-12275-6

Edmonds, Ranthony A.C., Ortega, O. "Perseverance and representation: A memorial for Katherine Coleman Goble Johnson August 26, 1918–February 24, 2020" AMS Notices Vol 68 No 3 March 2021 pp 379-386. https://doi.org/10.1090/noti2245

Agusto, F., Goldberg, A., Ortega, O., Ponce, J. ,Zaytseva, S., Sindi, S. and Blower, S. "How do interventions impact malaria dynamics between neighboring countries? A case study with Botswana and Zimbabwe" Using Mathematics to Understand Biological Complexity, Springer, 2020. (ISBN: 978-3-030-57128-3) https://www.springer.com/gp/book/9783030571283

Ortega, O. Editor-in-chief, National Association of Mathematicians, Inc. Quarterly Newsletter. Solicit articles, compose articles, typeset newsletter, print and mail physical newsletters, update digital edition of newsletters on NAM website, solicit advertisements. 2018 - 2021
https://www.nam-math.org/archives.html

Ortega, O. Editor-in-Chief, Proceedings of the Golden Anniversary Celebration of the National Association of Mathematicians, Inc., recruited and managed authors and reviewers for the proceedings, facilitated all rounds of review, maintained communication with AMS Contemporary Mathematics Series, organized editorial board meetings, reviewed all papers, drafted prologue. December 2020 Contemporary Mathematics Series of the American Mathematical Society, Vol 759.

Connolly, M., Topachevskyi, O., Standaert, B., Ortega, O., Postma, M. "The Impact of Rotavirus Vaccination in Egypt on Long-Term Government Expenditure: A Lifetime Net Tax Assessment" PharmacoEconomics. 2012; 30(8):681-695

Ortega, O,. Riddle, M., Sanders, J. et al "Cost-Benefit Analysis of a Rotavirus Immunization Program in Cairo, Egypt" Journal of Infectious Disease 2009; 200:S92-S98.

Ortega, O. "A Lucky Choice: Reflecting on My Time as a Grad Student in Mathematics at the University of Iowa." Infinite Possibilities Conference Website, 2009. http://www.ipcmath.org/ortega_iowa.htm

Ortega, O. "Resistance is Futile, Or is it? The Effects of Fluconazole on candida Albicans in a Single Host." Unpublished bachelor's thesis, Pomona College, Claremont, CA 2001

Anyadike, N., Ortega, O., Greenblatt, A., Engman, M., Wirkus, S. "Evolution of Fluconazole Resistance in Candida albicans," Cornell University Biometrics Unit Technical Report, BU-1528-M, 2000.

Publications with Students

Cabrera, S, Camarena, A, Hedge, N, Ochoa Zavalza, S, Tolson III, D, Williams, ME, Ortega, O. "Using Linear Regression to Examine Bias in Home Valuation" Sonoma State McNair Scholars Research Journal. Rohnert Park, CA: Sonoma State University. 2023

Cabrera, S, Camarena, A, Hedge, N, Ochoa Zavalza, S, Tolson III, D, Williams, ME, Ortega, O. "Homelessness in Sonoma County" Technical Report – Work conducted with student research group Fall 2022

Cabrera, S, Hedge, N, Knoll, G, Ochoa Zavalza, S, Sailor, J, Tolson III, D, Williams, ME, Ortega, O. "Sonoma State University Covid-19 Model" Sonoma State McNair Scholars Research Journal. Rohnert Park, CA: Sonoma State University. 2022

Ramirez, F and Ortega, O. "Using Mathematical Modeling to Predict the Spread of Measles." Sonoma State McNair Scholars Research Journal. Rohnert Park, CA: Sonoma State University. 2019

Lloyd, B, Ortega, O. “Human Papillomavirus Infection: A Stochastic Approach” Technical Report – Work conducted with student research group 2011.

Ortega, O., Ortiz, J., Johnson, E., “A Stochastic Model of Rotavirus Infection: Paving the Way to Mitigating Epidemics” Technical Report – Work conducted with student research group 2010.

Gaitan, A., Jackson, J., Justynski, O., Williams, D., Dwipayana, I., Messan, K., Ortega, O., Sanchez, F. “The Effects of Rural/Urban Movement on Dengue Transmission Dynamics,” Mathematical and Theoretical Biology Institute Technical Report 2014.
https://mtbi.asu.edu/sites/default/files/the_effects_of_rural_urban_movement_on_dengue_transmission_dynamics.pdf

Student Awards

2nd Place Best Poster – 2024 Sonoma State University Mathematics Festival
Nicolina Sandoval & Alex Boyle, An Analysis of the Most Frequent Terms in RTP Documents Across the Schools of SSU

Big Picture Best Poster 2022 Sonoma State University Research Symposium
Serina Cabrera, Geoffrey Knoll, & Dirk Tolson, SEAIRV Model of COVID-19 for Sonoma State University

Vital Visualizations Best Poster 2022 Sonoma State University Mathematics Festival Poster Session
Madelyn Elena Williams, Serina Cabrera, Salvador Ochoa, Jeremiah Sailor, Nathan Hedge, Geoffrey Knoll, Dirk Tolson, Extensions of a SEAIRV Model of COVID-19 at Sonoma State University

Best Poster 2020 Sonoma State University Research Symposium
Fabian Ramirez, A Mathematical Model of Measles and its Vaccination

Best Poster 2019 Sonoma State University Mathematics Festival Poster Session
Christina Lynch, Examining a Deterministic Model for Dengue Infection

Awards and Honors

MAA-NAM Section Lecturer 2026-2029
Center for Environmental Inquiry, Norwick Memorial Fund Award, Fall 2025. Project: *Water, Drought, and Valley Fever*
Visiting Research Faculty *Mathematics of Intelligences* Research Program, The Institute for Pure & Applied Mathematics (IPAM) Los Angeles, CA Fall 2024
SSU Educational Experience Enhancement Award 2023-2024
Fellow of the Association for Women in Mathematics 2022
SSU Social Justice Impact Award for Faculty 2022
SSU Educational Experience Enhancement Award 2022-2023
MSRI African Diaspora Joint Mathematics (ADJOINT) Fellow 2021-2022 ($20,000)
Visiting Research Faculty *Fairness, Algorithms, and Equity* Research Program at The Simon-Laufer Mathematics Institute (MSRI/SLMath) Fall 2023

Visiting Research Faculty *Data Science and Social Justice* Research Program at the Institute for Computational and Experimental Research in Mathematics (ICERM) Brown University, Providence, RI 2022-2023
MSRI Summer Research in Mathematics (SRiM) Fellow 2020-2022 ($20,000)
NSF HSI Grant: TIPS Towards Justice ($2,200,000, 2020-2025)
Association for Women in Mathematics Service Award 2020
STEM-NET Mini-Grant, CSU Chancellor's Office 2019
Koret Scholar, Sonoma State University 2018-2019
Fulbright-Hays Fellows 2015
ASU Centennial Professor Honoree 2012
Faculty Women's Association, Outstanding Mentorship Award 2012
Scholarship, Research and Creative Projects Grant, Arizona State University 2011-2012
Commission on the Status of Women, Outstanding Achievement and Contribution Award 2011
Campus Environment Team, Excellence in Diversity Award 2011
Faculty Women's Association, Outstanding Mentorship nomination 2011
ASU CLAS Teaching Award nomination 2010
ASU New College Service Award nomination 2010
Women & Philanthropy Grant, Arizona State University 2009-2010 ($8,000)
Scholarship, Research and Creative Projects Grant, Arizona State University 2009-2010
Project NExT Fellow, Mathematical Association of America, 2009-2010
WAESO Undergraduate Research Project Grants 2008-2012
U Iowa Summer Graduate Fellow, 2006
SLOAN Fellow, University of Iowa, 2005
GAANN Fellow, University of Iowa, 2001

References

Dr. Brigitte Lahme
Sonoma State University
Mathematics & Statistics Department
1801 E Cotati Ave
Rohnert Park, CA 94928
707 664 2238
lahme@sonoma.edu

Dr. Elisabeth Wade
Sonoma State University
School of Science & Technology
1801 E Cotati Ave
Rohnert Park, CA 94928
707 664 2171
wadee@sonoma.edu

Dr. Ghassan Sarkhis
Pomona College
Mathematics Department
610 N. College Ave.
Claremont, CA 91711
909 621 8717
ghassan.sarkis@pomona.edu

Leslie Arendell
Health Services Advisory Group (HSAG)
3133 E Camelback Rd.
Phoenix, AZ 85016
602 801 0546
larendell@hsag.com

Dr. Herbert Hethcote
University of Iowa
Department of Mathematics
14 Maclean Hall 225K
Iowa City, IA 52242
319 335 0768
herbert-hethcote@uiowa.edu

Dr. Ami Radunskaya
Pomona College
Mathematics Department
610 N. College Ave.
Claremont, CA 91711
909 621 8715
aradunskaya@pomona.edu

Dr. Roger Berger
Arizona State University – West Campus
School of Mathematical and Natural Sciences
4701 W. Thunderbird Rd
Glendale, AZ 85306
602 543 8545
roger.berger@asu.edu

Dr. Carlos Castillo-Chavez
Arizona State University – Tempe Campus
Mathematical and Computational Modeling Sciences Center (MCMSC)
P.O. Box 871804
Tempe, AZ 85287-1804
480 965 2115
ccchavez@asu.edu

Dr Abba Gumel
Arizona State University – Tempe Campus
School of Mathematical and Statistical Sciences
Tempe, AZ 85287
480 727 2690
agumel@asu.edu