

Jorge E. Reyes

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 Personal Website

EDUCATION

University of Nevada Las Vegas

Ph.D. Mathematical Sciences

May 2023

- Concentration: Computational Mathematics
- **Dissertation:** Mathematical Modeling: Finite Element Analysis and Computations Arising in Fluid Dynamics and Biological Applications
- Advisor: Dr. Monika Neda

M.S. Mathematical Sciences

May 2019

- Concentration: Applied Mathematics
- **Thesis:** An Application of Conformal Mapping to the Boundary Element Method for Unconfined Steady Seepage with a Phreatic Surface
- Advisor: Dr. Angel S. Muleshkov

B.S. Mathematics

May 2015

College of Southern Nevada

A.G.S. Associate of General Studies

December 2014

EXPERIENCE

Virginia Tech

Postdoctoral Associate

Aug 2023 - Present

Nevada National Security Sites (NNSS)

Graduate Science Internship (Associate in Science - Level 10)

Nov 2022 - Aug 2023

University of Nevada Las Vegas

Advanced Doctoral Graduate Assistant

Jan 2023 - May 2023

Graduate Assistant

Aug 2015 - Dec 2022

College of Southern Nevada

Part-time Instructor

Aug 2017 - Dec 2017

PUBLICATIONS

- [1] S. Breckling, J. Fiordilino, J. Reyes, and S. Shields, “A note on the long-time stability of pressure solutions to the 2D Navier Stokes equation,” *Applied Mathematics and Computations*, (Submitted).
- [2] L. Davis, M. Neda, F. Pahlevani, J. Reyes, and J. Waters, “A numerical study of a stabilized hyperbolic equation inspired by models for bio-polymerization,” *Computational Methods in Applied Mathematics*, (Submitted).
- [3] S. Huang, A. Johnson, M. Neda, J. Reyes, and H. Tehrani, “A generalization of the Smagorinsky model,” *Applied Mathematics and Computations*, (minor revisions).
- [4] J. Reyes, “Examples of identities and inequalities for the nonlinear term in the Navier–Stokes equation,” *Examples and Counterexamples*, vol. 3, pp. 100–109, (2023), ISSN: 2666-657X. DOI: [10.1016/j.exco.2023.100109](https://doi.org/10.1016/j.exco.2023.100109).

- [5] P. J.-S. Shiue, A. G. Shannon, S. C. Huang, and J. E. Reyes, “A generalized computation procedure for Ramanujan-type identities and cubic Shevelev sum,” *Notes on Number Theory and Discrete Mathematics*, vol. 29, no. 1, pp. 98–129, (2023). DOI: [10.7546/nntdm.2023.29.1.98-129](https://doi.org/10.7546/nntdm.2023.29.1.98-129).
- [6] S. Ingimarson, M. Neda, L. Rebholz, J. Reyes, and A. Vu, “Improved long time accuracy for projection methods for Navier-Stokes equations using EMAC formulation,” *International Journal of Numerical Analysis & Modeling*, vol. 20, no. 2, pp. 176–198, (2023). DOI: [10.4208/ijnam2023-1008](https://doi.org/10.4208/ijnam2023-1008).
- [7] P. J.-S. Shiue, A. G. Shannon, S. C. Huang, and J. E. Reyes, “Notes on efficient computation of Ramanujan cubic equations,” *Notes on Number Theory and Discrete Mathematics*, vol. 28, no. 2, pp. 350–375, (2022). DOI: [10.7546/nntdm.2022.28.2.350-375](https://doi.org/10.7546/nntdm.2022.28.2.350-375).
- [8] P. J. Shuie, S. C. Huang, and J. E. Reyes, “Algorithms for computing sums of powers of arithmetic progressions by using Eulerian numbers,” *Notes on Number Theory and Discrete Mathematics*, vol. 27, no. 4, pp. 140–148, (2021). DOI: [10.7546/nntdm.2021.27.4.140-148](https://doi.org/10.7546/nntdm.2021.27.4.140-148).

TALKS & SEMINARS

1. “Regularized Reduced Order Modeling for Turbulent Flow,” Mini-symposium 13: Recent Advances in Efficient and Robust Numerical Techniques for Partial Differential Equations and Their Applications, [8th SIAM Annual Meeting of Central States Section \(SIAM-CSS\)](#), University of Nebraska–Lincoln, Lincoln, NA, 2023
2. “Vreman Stabilization for Nonlinear Greenshield’s Model,” [Special Session: Modeling and Numerical Analysis for PDE Applications](#), Applied Mathematics, Modeling and Computational Science (AMMCS) International Conference, Waterloo, Ontario, CA, 2023.
3. “Time Filtering and Vreman Based Stabilization for a Hyperbolic Equation Inspired from DNA Transcription Modeling ,” Graduate & Professional Student Research Forum, University of Nevada Las Vegas, 2022, Podium J 1st Place Awardee.
4. “Mathematics: The Foundation of Science & Society ,” [8th Annual Inspiration, Innovation, Impact Presentation](#), University of Nevada Las Vegas, 2023
5. “Modeling Turbulence: Improving the Smagorinsky Model ,” [Mini-Symposium 23: Reduced Order Models for Complex Systems](#) , SIAM Southeastern Atlantic Section Annual Meeting (SIAM-SEA), Virginia Tech, Blacksburg, VA, 2023.
6. “Mathematics: The M in STEM,” [Student Interactions with Science, Technology, Engineering, and Mathematics \(SISTEM\)](#), University of Nevada Las Vegas, 2023
7. “Algorithms for Computing Ramanujan-Type Identities from Cubic Equations,” [AMS Contributed Paper Session on Number Theory and Field Theory I](#), Joint Mathematics Meeting (JMM 23), John B. Hynes Veterans Memorial Convention Center, Boston, MA, 2023
8. “Improved long time accuracy for projection methods for Navier-Stokes equations using EMAC formulation,” [Special Session on Numerical Partial Differential Equations and Applications](#), Joint Mathematics Meeting (JMM 23), John B. Hynes Veterans Memorial Convention Center, Boston, MA, 2023
9. “The Finite Element Method for Solving Navier-Stokes Equations,” Graduate Research Showcase 2022, Advancing Women in Mathematical Sciences, University of Nevada Las Vegas, 2022.
10. “Modeling Turbulence: Just Go With the Flow,” Grad Rebel Slam 3MT , Preliminary Round & Semi-Finals , University of Nevada Las Vegas, 2022.

11. “Fluid Flow Modeling: Finite Element Analysis & Computation” , Virginia Tech Colloquium, Virginia Polytechnic Institute and State University, Blacksburg, VA, 2022.
12. “Projection methods in Fluid Flow Modeling,” [Special Session on Numerical Partial Differential Equations and Applications](#) , AMS Fall Central Sectional Meeting, University of Texas at El Paso, El Paso, TX, 2022.
13. “Improving Eddy Viscosity Modeling,” [Minisymposium: Recent Advances in Finite Element Methods for Coupled Systems - Part II of III](#), Hybrid: 2022 SIAM Annual Meeting (AN22), David L. Lawrence Convention Center, Pittsburgh, PA, 2022.
14. “Improvements on Developing Novel Ramanujan Type Identities,” [Graduate & Professional Student Research Forum](#), University of Nevada Las Vegas, 2022, Podium G 2nd Place Awardee.
15. “Large Eddy Simulations- Improving The Smagorinsky Model ,” [Finite Element Rodeo](#), Southern Methodist University, TX, 2022.
16. “Sums of Powers of Arithmetic Progressions by Using Eulerian Numbers,” Grad Rebel Slam 3MT, University of Nevada Las Vegas, 2021.
17. “Number Theory Applications - Public-key Cryptosystems, Hash Functions, and Cryptocurrencies,” [2021 UNLV STEM Summer Camp](#), University of Nevada Las Vegas, 2021.
18. “On Sums of Powers - Eulerian Numbers,” [Graduate & Professional Student Research Forum](#), University of Nevada Las Vegas, 2021, [Podium F 2nd Place Awardee](#).
19. “The Generalized Smagorinsky Model - Large Eddie Simulations,” Grad Rebel Slam 3MT, University of Nevada Las Vegas, 2020.
20. “Large Eddie Simulations - Generalized Smagorinsky Model,” Partial Differential Equation Seminar, University of Nevada Las Vegas, 2020.
21. “Alternative Algorithm for Determining a Phreatic Surface for Seepage in Dams with Toe Drain,” Grad Rebel Slam 3MT, University of Nevada Las Vegas, 2019.
22. “Singularities and Improvements to The Boundary Element Method,” Grad Rebel Slam 3MT, University of Nevada Las Vegas, 2018.

POSTER PRESENTATIONS

1. “Long-Time Stability of Pressure Solutions to the 2D Incompressible Navier Stokes Equations,” UNLV Computational & Data Science Day, University of Nevada Las Vegas, 2023
2. “Introduction to Differential Equations and SIR Epidemiological Modeling ,” Graduate & Professional Student Research Forum, University of Nevada Las Vegas, 2023.
3. “Introduction to Differential Equations and SIR Epidemiological Modeling ,” MAA Golden Section Annual Meeting, Santa Rosa Junior College, CA, 2023.
4. “A Generalized Smagorinsky Model,” [Graduate & Professional Student Research Forum](#), University of Nevada Las Vegas, 2020.
5. “Alternative Algorithm for Determining a Phreatic Surface for Seepage in Dams with Toe Drain,” [Diversity Research and Mentorship Reception](#), University of Nevada Las Vegas, 2019.

SPEAKING ENGAGEMENTS

1. UNLV Latinx Graduation, 2023 , Student Speaker, University of Nevada Las Vegas
2. “GRA Grad School Prep Series: Process for Selecting Committee Members (Thesis & Dissertation),” 2023 , Panelist, Graduate College, University of Nevada Las Vegas
3. “ A Brief History of Mathematicians in Movies,” Pi(e) and Movie Night: A Celebration of Pi Day, UNLV SIAM Student Chapter, University of Nevada Las Vegas, 2023.
4. “First-Gen Mixer and Panel,” Panelist, [UNLV Graduate Admissions and Graduate College](#), University Gateway Building, University of Nevada Las Vegas, 2022.
5. “Inquiry III: The Art of Scientific Discovery,” College of Sciences Art Exhibition , Richard Tam Alumni Center, University of Nevada Las Vegas, 2022.
6. “A Glimpse Into Grad School,” Panelist, [1st Generation Club and Graduate College](#), University of Nevada Las Vegas (Hybrid), 2022.
7. “Planning and Preparing for Graduate Studies,” Panelist, UNLV Women in Mathematics, University of Nevada Las Vegas (Hybrid), 2022.
8. “Hybrid: First-Gen Mixer and Panel,” Panelist, [Graduate College](#), University of Nevada Las Vegas, 2021.

TEACHING

Virginia Tech

- MATH 2204: Introduction to Multivariable Calculus

University of Nevada Las Vegas

Instructor on Record

- MATH 120: Fundamentals of College Mathematics
- MATH 124: College Algebra
- MATH 126: Precalculus I
- MATH 127: Precalculus II

Discussion Section Instructor

- MATH 132: Finite Mathematics
- MATH 181: Calculus I
- MATH 251: Discrete Mathematics
- MATH 283: Calculus III
- MATH 330: Linear Algebra
- MATH 428: Differential Equations II
- MATH 431: Mathematics for Scientists and Engineers I
- MATH 453/ MAT 653: Abstract Algebra I
- MATH 454/ MAT 654: Abstract Algebra II

College of Southern Nevada

- MATH 132: Finite Mathematics

MENTORING

Nevada National Security Sites

James Watts (undergraduate intern)

Mentored James along with our supervisor Dr. Sean Breckling throughout his summer intern program, focusing on developing capabilities for modeling fluids and contaminate transport problems.

University of Nevada Las Vegas

Rashad Hall (undergraduate)

Mentored Rashad as part of UNLV’s Research and Mentorship program (RAMP) along with my advisor Dr. Monika Neda. This was a year-long program where I mentored and exposed Rashad to introductory research in mathematics. We focused on understanding epidemiological models and using them to model COVID-19.

AWARDS AND GRANTS

2023	SIAM Central States Travel Support 8 th Annual Meeting of SIAM Central States Section
2023-2025	AMS-Simons Travel Grant - \$6,000 American Mathematical Society
2023	Certificate of Special Congressional Recognition U.S. Senator Jacky Rosen
2023	Graduate College Medallion University of Nevada Las Vegas, Graduate College
2023	The “Best” of UNLV Award - \$500 University of Nevada Las Vegas, Graduate & Professional Student Association
2023	Expanding the Knowledge Frontier Award - \$300 University of Nevada Las Vegas, Graduate & Professional Student Association
2023	1st Place Podium J Presentation - \$500 25 th Annual Graduate & Professional Student Research Forum, University of Nevada Las Vegas
2023	Grad Student Travel Grant (JMM) - \$1,300 American Mathematical Society,
2022-2023	Wolzinger Family Science Research Scholarship - \$10,000 University of Nevada Las Vegas, College of Sciences
2022-2023	2022 HSF Scholar Hispanic Scholarship Fund
2022-2023	Patricia Sastaunik Scholarship - \$2,500 University of Nevada Las Vegas, Graduate College
2022-2023	GPSA Sponsorship Research & Travel Grant - \$2,801.50 (Total) University of Nevada Las Vegas
2016-2023	UNLV Access Grant - \$11,000 (Total) University of Nevada Las Vegas
2022	2nd Place Preliminary Round Presentation - \$200 9 th Annual Three Minute Thesis Competition, University of Nevada Las Vegas
2022	Grad Student Travel Grant - \$250 American Mathematical Society,
2022	SIAM Student Travel Awards - \$650 Society for Industrial and Applied Mathematics,
2022	Summer Doctoral Research Fellowship - \$7,000 University of Nevada Las Vegas, Graduate College
2022	2nd Place Podium G Presentation - \$350 24 th Annual Graduate & Professional Student Research Forum, University of Nevada Las Vegas:(Hybrid)
2021-2022	GPSA General Scholarship - \$400 University of Nevada Las Vegas
2020-2021	Frank A. DiCicco Endowed Scholarship - \$1,200 University of Nevada Las Vegas, College of Sciences
2021	2nd Place Podium F Presentation - \$300 23 rd Annual Annual Graduate & Professional Student Research Forum, (Virtual):University of Nevada Las Vegas
2020	PPOHA Graduate Support Grant - \$100 University of Nevada Las Vegas
2019-2020	UNLV Graduate College Recruitment Scholarship - \$1,000 University of Nevada Las Vegas, Department of Mathematical Sciences
2019-2020	Designated HSF Scholar Hispanic Scholarship Fund
2019	UNLV 1st Generation Graduate Medallion

2019	University of Nevada Las Vegas Audience Choice Award - \$100 6 th Annual Three Minute Thesis Competition,
2014-2015	University of Nevada Las Vegas Federal SEOG Grant - \$300
2014-2015	University of Nevada Las Vegas UNLV Grant - \$1,200
2012-2015	University of Nevada Las Vegas Millennium Scholarship - \$4,600 (Total, Eligible \$10,000)
2012-2015	University of Nevada Las Vegas/ College of Southern Nevada Federal Pell Grant - \$17,000 (Total)
2013-2014	University of Nevada Las Vegas/ College of Southern Nevada CSN Access Award - \$1,300 College of Southern Nevada

SERVICE

University of Nevada Las Vegas

Graduate & Professional Student Association

2015 - 2023

- Summer GPSA Council Representative - College of Sciences (2021,2022)
- [GPSA Council Representative - Department of Mathematical Sciences](#) (2017- 2023)
- Vice President for Diversity Initiatives & Chief Diversity Officer Search Committee Member (2021-2022)
- Graduate Program Review Committee Member (2019 -2020)
- GPSA Sponsorship Committee Vice Chair (2022 - 2023)
- GPSA Election Committee Member (2021)
- GPSA Constitution & Bylaws Committee Member (2021)
- GPSA Rules & Ethics Committee Member (2021 -2022)
- GPSA Awards Committee Member (2017, 2019-2020)
- Commencement Committee Volunteer (2022)

UNLV SIAM Student Chapter

2022 - 2023

- [Founding Vice-President](#), 2022-2023

PROFESSIONAL DEVELOPMENT AND CERTIFICATIONS

Programs

- Center for Excellence in Teaching and Learning (CETL): Book Club
Book: The Hidden Curriculum: First-Generation Students at Legacy Institutions, 2023
- [Grad Rebel Ambassador](#), 2022-2023
- [Culturally Relevant & Responsive Teaching \(CRRT\) Fellow](#), 2022-2023
- Research and Mentorship Program (RAMP) Mentor, 2022-2023
- [Future Faculty Diversity Program \(FFDP\) Fellow](#), Virginia Tech, 2022

Licenses & Certifications

- [Wolfram U: Level 1 Certification in Mathematica](#), Oct 2023
- LinkedIn: Diversity Across Generations: Supporting Workplace Inclusion, Jun 2023
- [Graduate Mentorship Certification](#), 2022-2023 Cohort
- [Graduate Teaching Certification](#), 2021-2022 Cohort
- LinkedIn: Core Strategies for Teaching in Higher Ed, Sep 2020
- LinkedIn: Learning to Teach Online, Aug 2020

Workshop Led

- Travel Sponsorship Workshop: Apr. 17, 2023
- GPSA Sponsorship Program Workshop: Sep. 21, 2022, Oct. 17, 2022

Workshop Attended

- [Designing Your Postdoc with Stanford University](#): Aug. 28, 2023
- Incorporating Social Justice Education in STEM: May. 12, 2023
- The Role of Relationships in Resilience: Apr. 28, 2023
- Evolving your Mentor-Mentee Relationship: Apr. 26, 2023
- The Elevator Pitch: Presenting your research in conversation: Apr. 26, 2023
- [GC: Articulating and Actualizing Stated Commitments to Diversity, Race Equity, Inclusion, and Racial Justice](#) : Apr. 6, 2023

- [GC: Mentoring Resource Panel](#) : Mar. 23, 2023
- [Research Writing](#) : Mar. 2, 2023
- [Affirming Latina/o/x Students in STEM](#): Feb. 24, 2023
- [Engaging a Framework of Critical Reflection for Transformative Learning](#): Dec. 9, 2022
- [GC: Preparing Future Faculty](#): Dec. 5, 2022
- [Culturally Aware Mentoring Workshop](#): Nov. 30, 2022
- [GC: Academic Job Offer and Salary Negotiation](#): Oct. 26, 2022
- [Structural Inequities in STEM: How Marginalized Students Experience STEM Environments and What We Can Do About it](#): Oct. 7, 2022
- [How to Manage Your Time-Panel](#): Oct 3, 2022
- [How to Get Early Career Funding](#): Oct 3, 2022
- [How to Prepare for the Job Market in Academia: How to Interview, Negotiate Salary, and Start-Up Package, Faculty Roundtable](#): Oct. 3, 2022
- [Building Mentorship Skills for Academic Careers](#): Sep 30, 2022
- [Managing Conflicts or Concerns in Mentor-Mentee Relationships](#): Sep. 29, 2022
- [General Effective Communication & Conflict Resolution](#): Aug. 22, 2022
- [Managing Conflict through Effective Communication](#) : Aug. 18, 2022
- [Content & Materials: Chunking Content in Your Online Course](#): Apr. 11, 2022
- [Teaching and Mentoring Diverse Learners](#): Nov. 10, 2021
- [Time-Management](#): Oct. 4, 2021
- [Online Teaching Essentials - GA](#): Oct. 1, 2020

AFFILIATIONS

American Mathematical Society (AMS)
 American Statistical Association (ASA)
 Pi Mu Epsilon (Math Honor Society)
 Phi Kappa Phi (Honor Society)
 Society for Industrial and Applied Mathematics (SIAM)
 National Postdoctoral Association (NPA)

SKILLS

Languages	FreeFem++, Mathematica, Python, Matlab, C++
Human Languages	English (Native), Spanish (Native), Mandarin (Beginner)
Typesetting	L ^A T _E X, Microsoft Word, Google Docs