



Keoni Castellano

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Education




- 2019 – 2024 **Ph.D., UNLV** in Mathematical Sciences with concentration in Applied Mathematics.
Advisor: Dr. Rachidi Salako
Dissertation title: *Global structure and asymptotic profiles of the endemic equilibria of a diffusive epidemic model with mass-action*
- 2015 – 2019 **B.S., UNLV** in Mathematics, *Magna Cum Laude*.

Employment History

- 2024 – ···· **Postdoctoral Associate.** Virginia Tech, Department of Mathematics.
- 2019 – 2024 **Graduate Assistant.** UNLV, Department of Mathematical Sciences.
- 2023 **Associate in Science (Level 9).** Mission Support and Test Services, LLC.
- 2022 **Intern.** Zuse Institute Berlin. Participant in G-RIPS 2022 Berlin. See *Professional Experience* for more details.
- 2017 – 2019 **Tutor.** UNLV, Department of Mathematical Sciences.

Research Publications

Journal Articles

- 1 Adetola, J., **Castellano, K.**, & Salako, R. B. (2024). Dynamics of classical solutions of a multi-strain diffusive epidemic model with mass-action transmission mechanism. *Journal of Mathematical Biology* (submitted).
- 2 **Castellano, K.**, & Salako, R. B. (2024). Multiplicity of Endemic Equilibria for a Diffusive SIS Epidemic Model with Mass-Action. *SIAM Journal on Applied Mathematics*, 84(2), 732–755.
 doi:10.1137/23M1613888
- 3 Huynh, E., & **Castellano, K.** (2022). Remarks on the preservation and breaking of translational symmetry for a class of ODEs. *Examples and Counterexamples*, 2, 100079.
 doi:<https://doi.org/10.1016/j.exco.2022.100079>
- 4 **Castellano, K.**, & Salako, R. B. (2022). On the effect of lowering population's movement to control the spread of an infectious disease. *Journal of Differential Equations*, 316, 1–27.
 doi:<https://doi.org/10.1016/j.jde.2022.01.031>

Presentations

Speaking Engagements

- 1 **Castellano, K.** (2024). Analysis of long-term behavior of infectious diseases using a diffusive epidemic model. GPSA 26th Annual Research Forum. UNLV.
- 2 **Castellano, K.** (2024). On the multiplicity of endemic equilibria for a diffusive SIS epidemic model with mass-action transmission mechanism. Joint Mathematics Meetings 2024. American Mathematical Society.
- 3 **Castellano, K.** (2023). Analyzing Infection in a Mathematical Direction. Rebel Grad Slam 3-Minute Thesis Competition, Preliminary Round. UNLV.

- 4 **Castellano, K.** (2023). Some Results on the Classical Solutions to a Diffusive Epidemic Model with Mass Action. Virginia Tech.
- 5 **Castellano, K.** (2023). Algorithm Development for the Integrated Film Reading System (IFRS). Final Intern Presentations. Nevada National Security Sites.
- 6 **Castellano, K.** (2023). Dynamics of classical solutions of a multi-strain diffusive epidemic model. Society for Mathematical Biology Annual Meeting. Ohio State University.
- 7 **Castellano, K.** (2023). Analyzing the long-term behavior of an infectious disease using a diffusive epidemic model. GPSA 25th Annual Research Forum. UNLV.
- 8 **Castellano, K.** (2023). Results on the asymptotic dynamics of a diffusive epidemic model. Joint Mathematics Meetings 2023. American Mathematical Society.
- 9 **Castellano, K.** (2022). The Mathematics of Infectious Diseases. Graduate Research Showcase. UNLV Department of Mathematical Sciences.
- 10 **Castellano, K.** (2022). The Effect of Movement Rates on the Spread of Infectious Diseases. Rebel Grad Slam 3-Minute Thesis Competition, Semi-final Round. UNLV.
- 11 **Castellano, K.** (2022). The Effect of Movement Rates on the Spread of Infectious Diseases. Rebel Grad Slam 3-Minute Thesis Competition, Preliminary Round. UNLV.
- 12 Bui, T., & **Castellano, K.** (2022). Classification of Electrocardiogram Data using AutoML Frameworks. G-RIPS Berlin 2022 Presentation Day. Zuse Institute.

Poster Presentations

- 1 **Castellano, K.** (2023). *Population movement and its effect on infectious disease spread.* Joint Alabama–Florida Conference on Differential Equations, Dynamical Systems and Applications 2023.

Teaching Experience

Virginia Tech

Instructor of Record

MATH 2214: Introduction to Differential Equations

University of Nevada Las Vegas

Instructor of Record

MATH 126: Precalculus I

MATH 181: Calculus I

MATH 330: Linear Algebra

Graduate Teaching Assistant

MATH 181: Calculus I

MATH 182: Calculus II

MATH 251: Discrete Mathematics I

MATH 283: Calculus III

MATH 330: Linear Algebra

MATH 365: Computational Linear Algebra

MATH 427: Differential Equations I

MATH 428: Differential Equations II

MATH 454/MAT 654: Abstract Algebra II

MATH 457/MAT 657: Introduction to Real Analysis I

MATH 458/MAT 658: Introduction to Real Analysis II

Mentorship

University of Nevada Las Vegas

August 2023 – May 2024 **Hannah Buhrmaster** - Mentored Hannah as part of the Graduate Mentorship Certification. I helped her develop study skills and guided her through her coursework as she planned her route to graduate school.

Awards and Achievements

April 2024 **Graduate College Medallion**, GPSA UNLV
\$500, 1st place, GPSA Research Forum Podium Session P

June 2023 **HSF Scholar**, 2023 Hispanic Scholarship Fund Scholar Program

April 2023 **\$5,500**, MSSAP 2023 Summer Assistantship (declined)
\$2,500, Patricia Sastaunik Scholarship
\$350, 2nd place, GPSA Research Forum Podium Session J
\$7,500, Summer Doctoral Research Fellowship

January 2023 **\$450**, Diversity Fellowship, UC Irvine Short Course in Systems Biology

November 2022 **\$100**, 3rd place, Rebel Grad Slam Preliminary Round

Professional Experience

Service

August 2024 **Panel Member, "Strategies for Thriving in the Thesis/Dissertation Process from Recent Graduates."** UNLV Grad Rebel Writing Boot Camp.

May 2024 **Scholarship Reviewer, "Gold Mountain Scholarship."** OCA – Asian Pacific American Advocates

April 2024 **Panel Member, "Graduate Student Panel."** UNLV Undergraduate Student Association of Research (U-STAR).

September 2023 – May 2024 **Member of the Top Tier Socially Just Research & Student Success Working Group**, UNLV

- Focuses on new initiatives to support graduate faculty and students, to promote excellence, and to help advance the Graduate College to tier one status
- Includes socially just curriculum and experiences and advancing diversity, equity, inclusion, and justice

August 2023 – **Member-At-Large, OCA Youth Leadership Committee**, OCA Las Vegas.

June 2023 – May 2024 **Representative for Department of Mathematical Sciences**, Graduate and Professional Student Association.

October 2022 – May 2024 **President and Co-founder of UNLV SIAM Student Chapter.** The student chapter of the Society for Industrial and Applied Mathematics (SIAM).

March 2023 **Event Supervisor**, Nevada Science Olympiad, Fast Facts Division B

March 2022 **Panel Member, "Planning and Preparing for Graduate Studies."** March monthly meeting for UNLV Women in Mathematics.

Professional Experience (continued)

Professional Development

March 2024	JACL/OCA Leadership Summit
October 2023	Future Faculty Diversity Program (FFDP) Fellow
August 2023 – May 2024	Graduate Mentorship Certification , Year-long program designed to develop mentorship skills.
May 2023–June 2023	UNLV Equity Institute , A short course designed to <ul style="list-style-type: none">• Introduce participants to digital equity through equity-minded and inclusive instructional practices that impact student success• Provide participants a place to learn and discover approaches and solutions to equitable and effective learning• Provide resources for participants to build a plan for incorporating new teaching practices or design into their course(s)
March 2023–June 2023	OCA Mentorship Program , OCA Las Vegas.
February 2023–March 2023	A Short Course in Systems Biology - Foundations , Center for Complex Biological Systems, UC Irvine.
August 2022–May 2023	Graduate Research Certification , Year-long program designed to provide the skills to begin, conduct, and conclude research projects.
June–August 2022	Graduate-Level Research in Industrial Projects for Students (G-RIPS) in Berlin , Institute for Pure and Applied Mathematics, UCLA. <ul style="list-style-type: none">• Project for biomedical company Biotronik at the Zuse Institute in Berlin.• Evaluated AutoML pipelines for use with ECG data• Mentored by Tim Conrad, Larissa Pusch, and Antje Linnemann

Workshops Led

October 2023	Travel Funding Workshop
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Workshops Attended

April 2024	Engaging Policymakers and Establishing Dialogue Around Research
October 2023	Self-care, Balance and Resilience
May 2023	LinkedIn Optimization
April 2023	Articulating and Actualizing Stated Commitments to Diversity, Race Equity, Inclusion, and Racial Justice
March 2023	National Science Foundation Funding, Career Opportunities, and Strategies for Graduate Students
February 2023	Budgeting for Grants Reviewer-Centric Grantmaking
December 2022	Scholarly Research Statement
November 2022	Finding a Postdoctoral Scholar Position
October 2022	Effectively Communicating your Research, Creative, & Scholarly Work

Professional Experience (continued)

September 2022	Applying for Graduate College Scholarships
June 2022	Machine Learning with MATLAB
	Machine Learning in Practice: Beyond the Model
October 2021	Data Analysis with MATLAB

Professional Affiliations

AMS	American Mathematical Society
PME	Pi Mu Epsilon
SIAM	Society for Industrial and Applied Mathematics
SMB	Society for Mathematical Biology

Skills

Coding	Python, R, C, C++, \LaTeX , Matlab
Machine Learning and Data Analysis	AutoML, Pandas, H2O.ai, AutoKeras
Misc.	\LaTeX typesetting and publishing.