WILLIAM S. CUELLO **714-271-9500**

CONTACT INFORMATION

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RESEARCH INTERESTS

I am interested in the global dynamics of ecological systems, and how mathematical differences between ecological models (either deterministic or stochastic) can lead to various long-term behaviors. For my thesis work, I analyzed how random, environmental factors affected single-species and multispecies persistence. Currently, I am using a mixture of tools from classical ODE theory, combinatorics, and algebraic topology to understand coarse dynamics of systems of interacting species.

EMPLOYMENT

Rutgers University – New Brunswick

Position: Hill Assistant Professor 2019 - 2022

Mentor: Prof. Konstantin Mischaikow

EDUCATION

University of California, Davis

Ph.D., Applied Mathematics 2012 - 2019

Thesis: Persistence of Single and Multispecies Systems in the Face of Environmental Uncertainty

Adviser: Sebastian J. Schreiber

University of California, Berkeley

B.A., Pure Mathematics, Italian Studies 2007 - 2012

UC Education Abroad Program - Bologna, Italy 2012

PUBLICATIONS

W.S. Cuello, J.R. Gremer, A. Sih, P.C. Trimmer, D.L. Venable, and S.J. Schreiber. "Extinction Risk of Sonoran Desert Annuals Following Potential Changes in Precipitation Regimes." In prep.

W.S. Cuello and S.J. Schreiber. "A Mathematical Framework for Multispecies Systems Undergoing Small Environmental Fluctuations." In prep.

P.H. Crowley, P.C. Trimmer, O. Spiegel, S.M. Ehlman, **W.S. Cuello**, and A. Sih. "Predicting habitat choice after rapid environmental change." The American Naturalist 193, no. 5 (2019): 619-632.

W.S. Cuello, J.R. Gremer, P.C. Trimmer, A. Sih, and S.J. Schreiber. "Predicting evolutionarily stable strategies from functional responses of Sonoran Desert annuals to precipitation." Proceedings of the Royal Society B 286, no. 1894 (2019): 20182613.

W.S. Cuello, T.A.T. Janes, J.M. Jessee, M.A. Venecek, M.E. Sawyer, C.R. Eklund, and M.V. Evans. "Physiologically based pharmacokinetic (PBPK) modeling of metabolic pathways of bromochloromethane in rats." Journal of toxicology 2012 (2012).

AWARDS/FELLOWSHIPS

NJ-NExT Fellow — 2021-2022
Professional development program for academic careers

William K. Schwarze Scholarship — Spr. 2017
Award for excellence in teaching and scholarship

UC Davis GGAM Departmental Fellowship — 2013, '14, '15, '17
Semester-long funding for graduate research

INTERNSHIPS/ RESEARCH PROGRAMS/ SEMINAR TALKS

Tulane University, New Orleans, LA — Fal. 2019
Seminar Presentation

University of California, Davis, Davis, CA — Spr. 2019
MathBio Seminar – Thesis Presentation & Exit Seminar

Zuse Institute Berlin, Berlin, Germany — Sum. 2017
Graduate-Level Research in Industrial Projects for Students in Berlin (GRIPS)

North Carolina State University, Raleigh, NC — Sum. 2011
Research Experience for Undergraduates (REU+)

OUTREACH/ VOLUNTEERING

Rutgers University Research Experience for Undergraduates (REU)	Sum. 2020
UC Davis Stem Cafe Tutor at the Women's Resources and Research Center (WRRC)	2014 - 2018
California State Summer School for Mathematics and Science (COSMOS) (UC Davis)	Sum. 2016
Co-organizer of UC Davis Qualifying Exam Workshop for Graduate Groups of Applied and Pure Mathematics	Win. 2016
California State Summer School for Mathematics and Science (COSMOS) (UC Davis)	Sum. 2015
Referee for Journal of Dynamics and Differential Equations	
Referee for Journal of Mathematical Biology	

CONFERENCES/WORKSHOPS/SEMINARS

NJ-Mathematical Association of America Meeting	Apr. 2021
NJ-NExT Fellows Workshop	Apr. 2021
Theoretical Ecology Seminar Series	2020-2021
UC Davis DataLab Introduction to Git Workshop	Dec. 2020
Banff International Research Station	May 2020
Nat'l Institute for Math and Bio Synthesis (NIMBioS) Math Modeling of Malaria Transmission by Mosquitoes	Apr. 2020
University of Delaware, Newark, Delaware Workshop on Topology: Identifying Order in Complex Systems	Nov. 2019
Centre de Recherches Mathématiques: Topological and Rigorous Computational Methods for High Dimensional Dynamics	Apr. 2019
MSRI Stochastic Partial Differential Equations	Jul. 2014
GGAM Mini-Conference	Jan. 2014
GGAM Mini-Conference	Jan. 2013

TEACHING

Rutgers University – New Brunswick (Lecturer)

Discrete and Probabilistic Models in Biology (Math 338)	Spr. 2021
Intro to Abstract Algebra I (Math 351)	Fal. 2020
Intro to Linear Algebra (Math 250)	Fal. 2020
Intro to Real Analysis I (Math 311)	Spr. 2020
Discrete and Probabilistic Models in Biology (Math 338)	Spr. 2020
Mathematical Statistics (Math 481)	Fal. 2019

University of California – Davis (TA and Lecturer)

2012 - 19

Precalculus (TA)
(Math 12)

Short Calculus (TA)
(Math 16B)

Calculus for Biologists (IOR, TA)
(Math 17A,B,C)

Calculus for Math and Engineering (TA)
(Math 21A,B,C,D)

History of Mathematics (TA)
(Math 111)

Ordinary Differential Equations (TA)
(Math 119A)

Mathematical Biology (TA)
(Math 124)

Real Analysis (TA)
(Math 125A)

Applied Mathematics (TA)
(Math 207C)

MEMBERSHIPS AND ORGANIZATIONS

Mathematical Associations of America – New Jersey

DIMACS

TRIPODS: DATA-Inspire

Association for Women in Mathematics Student Chapter of Rutgers University