

Danielle J. Lyles, Ph.D.

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Education

NSF Mathematical Sciences Postdoctoral Fellowship: October 2007 – October 2010

I conducted research in the area of theoretical spatial ecology, with an emphasis on the combined roles of deterministic and stochastic processes.

Advisor: Dr. Alan Hastings, Department of Environmental Science and Policy, UC Davis

Ph.D., Applied Mathematics, Cornell University, 2008

Concentrations: Mathematics and Neuroscience

Dissertation title: BK Channel Properties: Consequences for Cellular Excitability - Modeling, Simulation, and Experiment

Advisor: John Guckenheimer, Department of Mathematics, Cornell University

M.S., Applied Mathematics, Cornell University, 2005

B.S., Mathematics, University of Texas at San Antonio, 2000

Magna Cum Laude w/Division Honors

Undergraduate Honors Thesis: Modeling Follicular Growth and Development in the Human Menstrual Cycle

Advisor: Dr. Mary Lou Zeeman

Teaching Experience

Instructor at CU Boulder:

Instructor: Fall 2016 – Present

Lecturer at UTSA:

Lecturer III: Fall 2014 – Summer 2016

Lecturer II: Fall 2010 – Spring 2014

Courses taught:

Matrix Methods

Calculus for the Biosciences (regular and honors)

Calculus I (regular and honors)

Algebra for Scientists & Engineers

Algebra for Scientists & Engineers Q (redesigned for Quantitative Literacy)

Quantitative Literacy Workshop

Online:

Calculus I, Quantitative Literacy Workshop

Postdoctoral Scholar at UC Davis - courses taught:

Short Calculus and Calculus for Biosciences

Recitation Instructor (TA) at Cornell University:

Spring 2005 - Vector Calculus for Engineers

Project Leader and Teaching Assistant (TA) at Mathematical & Theoretical Biology Institute

(MTBI): Summer 2002 (Cornell University) — supervise research project, interactive teaching, tutoring, & grading

Other Professional Experience

Faculty Advisor:

- SIAM Undergraduate Chapter at CU Boulder: Fall 2016 - present

Online Course Development:

- Calculus I at UTSA (Summer 2015-Spring 2016)
- Calculus II at CU Boulder (Fall 2016 – present)

Course Coordination

- Matrix Methods Course co-coordinator at CU Boulder: Fall 2016
- Calculus for the Biosciences Course Coordinator at UTSA: Fall 2010 – Spring 2016
 - Choose textbook and create syllabus; Mentor new faculty
 - Prepare core curriculum proposal (a detailed plan for assessment of student learning goals of the core curriculum)
 - Coordinate assessment of student learning goals among faculty (create common questions, project template, grading rubrics, and assessment template)

UTSA Quantitative Literacy Program Faculty Specialist: Spring 2013 – Fall 2014

- Mentor faculty in course redesign (and assessment) for quantitative literacy
- Teach Quantitative Literacy Workshop
- Develop Online Quantitative Literacy Workshop

Redesign of Algebra for Scientists and Engineers for Quantitative Literacy: Summer 2012, UTSA

- Create “Q” Assignments that reinforce course learning goals and involve data visualization, data analysis, and synthesis and communication of results
- Create pre/post-test
- Assess pre/post-test and “Q” Assignments at individual student and question level

Biology Lab Experience:

- Spring 2006 – Fall 2006: Experimental work in Cornell University Neurobiology Laboratory (McCobb lab) gathering electro-physiological data to fit to BK channel gating model for thesis project
- Summer 2003 – Summer 2004: Internship in Cornell University Neurobiology Laboratory – McCobb lab – Cell culture and patch clamping

Professional Development

- Fall 2015, FIT Coffee Break - Designing and Teaching a Dynamic Online Course
- Summer 2015, UTSA Teaching Online Academy
- 2013, Softchalk 8 Training Workshop at UTSA
- UTSA Teaching and Learning Center Workshops:
 - 2016 How Do I Change to Active Learning?
 - 2015 Core Curriculum Assessment
 - 2013 Preparing a Professional Portfolio
 - 2013 An Introduction to Formative Classroom Assessment
 - 2012 Encouraging Deep Learning by Flipping the Classroom
 - 2012 A Picture is Worth a Thousand Words
- 2012, UTSA Quantitative Literacy Program Summer Training Workshops
- 2008, AIM Workshop Participant “Rhythms in the Hypothalamus and Pituitary”
- 2005, Student: Engineering TA Training for Cornell University TA Certification
- 2001, Student: Mathematical and Theoretical Biology Institute (MTBI) Summer Research Program, Cornell University

Additional Skills

- Online Course Management: Blackboard, Blackboard LEARN
- Online Course Development: Softchalk 8 and Blackboard LEARN
- Online homework software: MyMathLab, WileyPlus
- Microsoft Office Software: Word, Excel, PowerPoint
- Proficient in both Windows and Macintosh operating systems
- Programming Languages/Scientific Computing Software: XPP, MATLAB, and C++

Research Grants, Fellowships, and Awards

Postgraduate:

UTSA Quantitative Literacy Program Award: Summer 2012

Nominated for a UTSA Ambassadors Amber Award: Fall 2011

NSF Mathematical Sciences Postdoctoral Fellowship: October 2007 – October 2010

Graduate

SIAM Student Travel Award – Summer 2006

Mathematics Research Assistantship (RA): Spring 2006- Spring 2007

Nominated for a 2005 Department of Mathematics Teaching Award – Spring 2005

Cornell University Provost Diversity Fellowship – Fall 2005

Honorable Mention in the LOREAL USA 2004 Competition

Mathematics Research Assistantship (RA): Fall 2003 - Spring 2004

IGERT Fellowship: Fall 2001-Spring 2003

Poster award at AMS conference in San Diego, CA: January 2002

Undergraduate

LSAMP Scholarship: Summer 1999 - Spring 2000

McNair Scholarship: Summer of 1999

American Mathematical Society Waldemar J. Trjitzinsky Scholarship: 1999

Office of Naval Research (ONR) Scholarship: Spring 1998 - Spring 1999

Bernard Rappaport Scholarship: Fall 1997 - Spring 1998

Publications

Peer-Reviewed

- D. Lyles, T.S. Rosenstock, and A. Hastings, "Plant reproduction and environmental noise: How do plants do it?", *Journal of Theoretical Biology* (2015) 371: 137-144.
- Todd S. Rosenstock, Alan Hastings, Walter D. Koenig, Danielle J. Lyles, and Patrick H. Brown. "Testing Moran's Theorem in an Agroecosystem." *Oikos* 120.9 (2011) 1434-1440.
- D. Lyles, J. H. Tien, D.P. McCobb and M. L. Zeeman. "Pituitary Network Connectivity as a Mechanism for the Luteinising Hormone Surge." *Journal of Neuroendocrinology* 22 (2010) 1267-1278.
- D. Lyles, T. S. Rosenstock, A. Hastings, and P. H. Brown. "The Role of Large Environmental Noise in Masting: General Model and Example from Pistachio Trees." *Journal of Theoretical Biology* 259 (2009) 701-713.
- J.H. Tien, D. Lyles, and M.L. Zeeman. "A potential role of modulating inositol 1,4,5-triphosphate receptor desensitization and recovery rates in regulating ovulation." *Journal of Theoretical Biology* 232 (2005) 105-117.

Conference Proceedings

K.M. Massaro, E.F. Orta, D. Lyles, D.A. Sass, M.A. Sanchez & C. Stroud. 2014. Quantitative Literacy: Analysis of a Q Course. In *JSM Proceedings*, Section on Statistical Education. Alexandria VA: American Statistical Association. 3358-3365.

Technical Reports

Ryan Hernandez, Danielle Lyles, Dan Rubin, & Tom Voden. "A Model of Beta-cell Mass, Insulin, Glucose, and Receptor Dynamics with Applications to Diabetes." *Cornell University Biometrics Technical Reports* (2001)

Doctoral Dissertation

D. Lyles. "BK Channel Properties: Consequences for Cellular Excitability - Modeling, Simulation, and Experiment" *Cornell University PhD Thesis* (2008).

Undergraduate Thesis

D. Lyles. "Modeling Follicular Growth and Development in the Human Menstrual Cycle." *The University of Texas at San Antonio Undergraduate Thesis* (2000).

Professional and Research Presentations

Invited Conference Talks

- February 2016: The Third Annual LEAP Texas Forum: Texas Core Curriculum Success Stories at UTSA - Assessing Communication in Calculus for the Biosciences
- 2015: Ecological Society of America (ESA) 100th annual conference in Baltimore, MD. I gave a talk at symposium titled: Recent advances in Studies on Seed Masting: Interpreting Empirical Data with Mechanistic Models. My talk was titled "The role of large environmental noise in masting: General model and example from pistachio trees"
- 2006: SIAM-SMB Joint Conference on the Life Sciences. I gave a talk at mini-symposium. My talk was titled "BK Channel Diversity: Consequences for Cellular Excitability"
- 2004: SIAM Life Sciences Conference Joint with the SIAM Annual Meeting. I gave a talk at a mini-symposium. My talk was titled "Modeling the LH Surge: A Possible Mechanism"

Seminar Talks

2016: Math Bio Seminar at CU Boulder: The Interaction Between Noise and Oscillations

2015 Instructor Colloquium: Engaging and Assessing Students During Class

2009: Special Seminar in Computational Biology at UTSA

2001, 2002, & 2003: IGERT seminars, Cornell University

2001: MTBI Symposium at Cornell University

2000: South Texas Math Consortium Conference in San Antonio

1999: McNair Symposium at UTSA

1998 (2) and 1999: ONR Symposia at UTSA

Posters and Abstracts

2005: Poster and Abstract: M.L. Zeeman, D.J. Lyles, J. H. Tien, D. P. McCobb:
How does estradiol initiate the LH surge in the human menstrual cycle? A modeling approach. 3rd International Meeting on Steroids and the Nervous System, Torino, Italy

2001: Poster at MTBI Banquet in Ithaca, NY

1999: Poster at LSAMP conference in Austin, TX

Professional Service and Affiliations

Professional Service

- **The University of Colorado at Boulder**
 - Faculty Advisor: SIAM Undergraduate Chapter (Fall 2016 – present)
 - Referee for the International Journal of Biomathematics (Fall 2016)
- **The University of Texas at San Antonio**
 - Mathematics Department Service Evaluation Committee (Spring 2013 – present)
 - UTSA Quantitative Literacy Committee (Fall 2013 – Spring 2014)
 - UTSA Annual Review Committee (Spring 2014)
 - Referee for JTB (Journal of Theoretical Biology) – Spring 2014
 - Referee for Journal of Ecology – Spring 2014
 - Referee SIADS (SIAM Journal on Applied Dynamical Systems) – Fall 2010
- **Cornell University**
 - Conference co-organizer IGERT conference, Spring 2002 - Fall 2002
 - Referee (joint) for the Bulletin of Mathematical Biology (Spring 2002) & for the Journal of Neuroscience (Spring 2006)
 - Mentor to 1st year graduate students: Fall 2002 – Spring 2003 and Fall 2005 – Spring 2006

Community Service

- Volunteered with Expanding Your Horizons (EYH) at Cornell University for 3 years:
 - **Registration Co-chair:** March - April 2006
 - **Workshop Co-leader** "Math, Medicine, and the Menstrual Cycle" (April 2005)
 - **Workshop Assistant** "Tilings and Tessellations" (April 2004)

Affiliations

- Society for Industrial and Applied Mathematics
- American Mathematical Society
- Mathematics and Climate Research Network

Professional References – Danielle Lyles

Dr. Sandy Norman, Associate Professor and Department Chair
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Dr. Nancy Martin, Associate Vice Provost
Core Curriculum and Quality Enhancement Plan (QEP)
Professor of Educational Psychology
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Dr. Mary Lou Zeeman, R. Wells Johnson Professor of Mathematics
(*Graduate and undergraduate research advisor*)
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(*Post-doctoral research advisor*)
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Dr. John Guckenheimer, Professor
(*Graduate advisor – chair of thesis committee*)
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Dr. Carlos Castillo-Chavez, Joaquin Bustoz Jr Professor of Mathematical Biology & Regents Professor
(*MTBI REU program Director (at Cornell University) while I was both a student and a TA*)
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