

## CONTACT INFORMATION

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## CURRENT POSITION (HELD SINCE SEPTEMBER 2013):

**Instructor of Mathematics, Seattle University**

## EDUCATION

**University of Washington**, Seattle, Washington USA

- Ph.D., Applied Mathematics, December 2011  
Dissertation: Mathematical Models for Facilitated Diffusion and the Brownian Ratchet  
Advisor: Hong Qian
- M.Sc., Applied Mathematics, December 2004

**Macalester College**, Saint Paul, Minnesota USA

- B.A., Mathematics and Physics, May 2002

## RESEARCH INTERESTS

Applied Stochastic Processes, Partial Differential Equations, Dynamical Systems,  
Mathematical Biology, Molecular Motors, Mathematical Modeling

## HONORS AND AWARDS

**University of Washington:**

- Boeing Teaching/Service Award 2009  
for outstanding teaching and service by a student in the department of Applied  
Mathematics at the University of Washington in the 2008-2009 academic year
- VIGRE Fellowship 2005, 2006, and 2009
- GK-12 Fellowship 2007 and 2008
- Graduate School Top Scholar 2003

**Macalester College:**

- Russell B. Hastings Book Award 2002  
for achievement in physics and service to the department
- Graduated *Cum Laude*
- Pi Mu Epsilon  
elected in sophomore year

## SEATTLE UNIVERSITY TEACHING EXPERIENCE

### **Instructor of Mathematics:**

- Multivariable Calculus (MATH 232)  
*Winter 2014 & Fall 2013*  
Calculus of functions of several variables, including vector calculus and applications.  
Final grades based on homework, two mid-term exams, and a comprehensive final exam.  
Fall 2003 class size: 32. Winter 2014 class size: 28.
- Precalculus: Algebra (MATH 120)  
*Winter 2014*  
Pre-calculus for science and engineering students.  
Final grades based on homework, three mid-term exams, and a comprehensive final exam.  
Section 2 class size: 27. Section 3 class size: 27.
- College Algebra for Business (MATH 118)  
*Fall 2013*  
Pre-calculus with a focus on applications to business.  
Final grades based on homework, three mid-term exams, and a comprehensive final exam.  
Class size: 32.

## PACIFIC LUTHERAN UNIVERSITY TEACHING EXPERIENCE

### **Visiting Assistant Professor:**

- College Algebra & Trigonometry (MATH 115)  
*Spring 2013*  
Review of algebra & trigonometry, with an emphasis on problem solving and basic skills.  
Final grades based on homework, three mid-term exams, and a comprehensive final exam.  
Section 1 class size: 25. Section 2 class size: 25.
- Calculus II (MATH 152)  
*Spring 2013*  
Second semester calculus, covering integration, sequences, & series. Final grades based on homework, three mid-term exams, and a comprehensive final exam. Class size: 23.

## UNIVERSITY OF WASHINGTON TEACHING EXPERIENCE (AS A GRADUATE STUDENT)

### **Instructor:**

- Introduction to Continuous Mathematical Modeling (AMATH 383)  
*Summer 2008 & Spring 2009*  
Mathematical modeling with differential equations as a prerequisite. Final grades based on homework and a 10-15 page written report on a modeling project of the student's choice. Summer 2008 class size: 22. Spring 2009 class size: 40.
- Introduction to Differential Equations and Applications (AMATH 351)  
*Spring 2006*  
Introductory ordinary differential equations with multivariate calculus as a prerequisite. Final grades based on homework, two mid-term exams, and a comprehensive final exam.  
Class size: 35.

### **Teaching Assistant:**

Responsible for quiz sections that met twice a week.

- Algebra with Applications (MATH 111) *Autumn 2008 & Winter 2009*
- Precalculus (MATH 120) *Autumn 2004*
- Calculus with Analytic Geometry II (MATH 125) *Autumn 2003 & Winter 2004*

## OTHER TEACHING EXPERIENCE

- **GK-12 Fellow**, Emerson Elementary School, Seattle, Washington  
*September 2006-June 2008*  
Served as a “mathematics specialist” in third and fourth grade classrooms. Fellows supported classroom teachers as they learned to teach inquiry-based mathematics. Duties included teaching and planning lessons with teachers, and working with students in small groups or one-on-one.
- **Summer School Instructor**, Charles Wright Academy, University Place, Washington  
*June-August 2000*  
Taught summer school classes for up to 12 middle and high school students on Mathematics and SAT Preparation. Duties included lecturing, creating lesson plans and homework assignments, as well as one-on-one tutoring. Instructed elementary school students in basic baseball skills.

## PROFESSIONAL SERVICE AND OUTREACH

- **NUMS Participant**  
*2013*  
Participant in the Northwest Undergraduate Mathematics Symposium, held at Pacific Lutheran University in Tacoma, WA on April 6, 2013.
- **Math Fair Volunteer**  
*2010-2011*  
Volunteered at math fairs at Lockwood Elementary School in Bothell, WA and Emerson Elementary School in Seattle, WA. Played math games with students, helped students calculate the height of a basketball hoop using similar triangles and lasers, helped students investigate gravity using stopwatches to time a dropped marble.
- **Mathematical Biology Journal Club Participant, Organizer**  
*2004-2011*  
Participated in the departmental mathematical biology journal club throughout graduate school. Current and classic journal articles were discussed in a collaborative setting. Served as the organizer for the journal club from January 2006 until December 2008.
- **SIAM UW Student Chapter Officer**  
*Autumn 2008-Spring 2009*  
Served as an officer for the SIAM student chapter at the University of Washington. Duties included recruiting and scheduling speakers for a weekly seminar attended by graduate students, as well as buying snacks and facilitating seminars.
- **Undergraduate Seminar Organizing Committee Member, Chair, Speaker**  
*Autumn 2009-Spring 2010, Spring 2004-Spring 2006*  
Co-organized a new seminar (AMATH 490) in Spring 2004, offered to engage the interest of undergraduates in mathematical research areas at an early stage in their careers. Served as a member of the Undergraduate Mathematical Sciences Seminar organizing committee for the 2004-2005 and 2009-2010 academic years, and as the chair for the 2005-2006 academic year. Duties as chair included advertising, seminar announcements, recruiting speakers, CR/NC grade assignment, and delegating responsibilities to seven other committee members. Presented my own research twice, in June 2005 and February 2006.

## EXPERIENCE WITH RESEARCH AS AN UNDERGRADUATE

- **Mathematics Capstone Project:** *Map Projection Distortion*, Macalester College  
*September 2001- May 2002*

Studied techniques from both differential geometry and cartography for quantifying the distortions introduced by projecting the Earth, as a sphere, onto a flat map. The project culminated in both a 30-minute presentation and a 33 page written report.

- **Physics Research Assistant**, Macalester College  
*Summer 2001*

Designed and implemented experimental set-ups for studying resonance phenomena in quantum wells. Participated in research that led to a publication listed below.

## REFEREED JOURNAL PUBLICATIONS

- **Cole, C. L.**, Qian H. The Brownian Ratchet Revisited: Diffusion Formalism, Attraction, and Multiple Filamentous Bundle Growth, *Biophysical Reviews and Letters*, 2011, 6 (1 & 2): 59-79.
- **Cole, C. L.**, Qian H. Simple Chemical Model for Facilitated Transport with an Application to Wyman-Murray Facilitated Diffusion, *Acta Phys. -Chim. Sin.*, 2010, 26 (11): 2857-2864.
- Heyman, J. N., Wrage, H., **Lind, C.**, Hebert, D., Neocleous, P., Crowell, P. A., Müller, T., Unterrainer, K. Terahertz Emission From Magneto-plasma Oscillations in Semiconductors, *Ultrafast Phenomena in Semiconductors VI*, Tsen, Song, Jiang, Editors, Proceedings of SPIE, 2002, Vol. 4643: 12-18.

## CONFERENCE PRESENTATIONS

- **SIAM Conference on Nonlinear Waves and Coherent Structures 2012:**  
*MS36 Diffusion-Driven Pattern Formation in Biological Model Systems:*  
The Brownian Ratchet Revisited: Multiple Filamentous Bundle Growth  
(Mini-Symposium Presentation)
- **Frontiers in Biophysics 2011:**  
*The Brownian Ratchet Revisited: Multiple Filamentous Bundle Growth*  
(Poster Presentation)
- **International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology 2009:**  
*A Simple Chemical Kinetic Model for Facilitated Diffusion*  
(Poster Presentation)
- **Joint Mathematics Meetings 2008:**  
*AMS Special Session on Learning and Math Graduate Students in K-12 Classroom:*  
Panel 7: Effects of the University of Washington's GK-12 project on fellows' teaching pedagogy and on elementary school teachers' and students' content knowledge.  
(Panelist)

## OTHER PRESENTATIONS

- **Pacific Lutheran University Math Department Seminar, December 2011 & Seattle University Math Department Colloquium, November 2013:**  
*Mathematical Models for Molecular Motors - The Polymerization Ratchet*