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BRANDY S. WIEGERS**Department Address**

Department of Math
 University of California
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Career Objective

A rewarding, challenging tenure track position that provides opportunities for further development of my research, teaching and service experience.

Education**University of California, Davis**

Davis, CA

Ph.D. in Applied Mathematics, June 2008 (expected).
 Advisors: Dr. Angela Cheer and Dr. Wendy Silk.
 Advanced to candidacy June 2005.

University of Idaho

Moscow, ID

B.S. in Mathematics, May 2002.
 B.Sy.E. in Biological Systems Engineering, May 2002.

Mathematical Focus

Applied Mathematics, Mathematical Biology (AMS 92), Scientific Computation, Numerical Methods (AMS 65), Linear Algebra and Partial Differential Equations.

Research Interests

Currently developing a three-dimensional dynamic model of the water movement in the 10 mm primary growth section of plant roots. Previous experience researching population dynamics, bio-statistical modeling, and engineering applications.

Publications

Brandy S. Wiegiers, Angela Y. Cheer, and Wendy K. Silk. *Modeling the Hydraulics of Root Growth in Three-Dimensions with Internal Water Sources*. (In preparation).

Zhiming Liao, Shihua Wang, Brandy S. Wiegiers, and Steven K. Clinton. *Energy Balance Alters Dunning R3327-H Prostate Tumor Architecture, Androgen Receptor Expression and Nuclear Morphometry in Rats*. The Prostate. Volume 66, Issue 9, Pages 945-953. March 2006.

Professional Highlights**Explore Math Grant Writer and Program Coordinator**

Winter 2006 - Fall 2007

Co-founded, obtained funding (\$200,000 over five-years) and coordinated the Explore Math program, a graduate student facilitated mathematical enrichment program for high school and undergraduate students. The program has received national praise and a departmental citation.

Mathematical Science Research Institute (MSRI) Outreach

2007 - Current

National Math Circle Coordinator, Oakland/ East Bay Math Circle Director

Collaborative Learning at the Interface of Mathematics and Biology (CLIMB)

2006, 2007

Taught an overview of mathematical biology and guided undergraduates research.

Resource Modeling Association

2007- Current

Secretary, 2007 Conference Program Committee - Student Professional Development Activity Organizer

Galois Group Professional Development Series

Fall 2006

Organized student professional development activities. Published summary on departmental website.

Research Presentations**Three-Dimensional Internal Source Primary Root Growth Model**

2008 Joint Mathematics Meetings (JMM). San Diego.

Jan 7, 2008 (scheduled)

Modeling the Hydraulics of Root Growth in Three-Dimensions with Internal Water Sources

UC Santa Cruz, Applied Math & Statistics Seminar. Invited Speaker. Santa Cruz, CA.

Nov 26, 2007

**Research
Presentations**

Three Dimensional Computational Model of Water Movement in Plant Root Growth Zone

2007 World Conference on Natural Resource Modeling. Cape Cod, MA. June 21, 2007
Mathematical Biology Seminar, UC Davis, CA. April 23, 2007
Occidental College "Mathematical Models in Biology" Course. Invited Speaker. April 16, 2007
Los Angeles, CA.
2007 Joint Mathematics Meetings (JMM). New Orleans, LA. Jan 8, 2007
2006 AWM Workshop at 2006 SIAM Meeting. Boston, MA. July 11, 2006
2006 World Conference on Natural Resource Modeling. Bergen, Norway. June 26, 2006
Graduate Student-Run Seminar (Combined Applied and Pure). UC Davis, CA. Feb 8, 2006

Growth Sustaining Water Potential Distributions in Plant Roots

Interdisciplinary Graduate Student Symposium. UC Davis, CA. March 5, 2005

Computational Model of Water Movement in Plant Root Root Growth Zone

2005 World Conference on Natural Resource Modeling. Humboldt State Univ., CA. June 17, 2005
Received Outstanding Student Oral Presentation Award

Growth Sustaining Water Potential Distributions in Plant Roots

Graduate Student-Run Seminar (Combined Applied and Pure). UC Davis, CA. Nov 3, 2004

**Awards and
Honors**

Consortium for Women and Research Graduate Travel Award

University of California, Davis. Spring-Summer 2008

Dissertation Year Fellowship

University of California, Davis. Summer 2006-Spring 2007

USDE GAANN Fellowship

Department of Mathematics, UC Davis. Fall 2005-Spring 2006

Professors for the Future (PFTF) Fellowship

College of Graduate Studies, UC Davis. Fall 2005-Spring 2006

UCD Outstanding Graduate Student Community Service Award

UC Davis Human Corps. 2005

NSF VIGRE Fellowship

Department of Mathematics, UC Davis. NSF VIGRE Grant No. DMS- 0135345 Summer 2003-Fall 2005

Outstanding Student Oral Presentation

2005 World Conference on Natural Resource Modeling. Humboldt State University. Humboldt, CA. June, 2005

University of California Graduate Opportunities Fellowship

University of California, Davis. October 2002-June 2003

Tau Beta Pi National Engineering Honor Society Engineering Fellowship

May 2002

College of Letters and Science Lindley Award, ASUI Outstanding Senior Award, UI Alumni Award

May 2002

University of Idaho.

For excellence within the University, representing a future alumni of distinction. Only one Lindley Award is presented every year.

Barry M. Goldwater National Scholarship

University of Idaho. Fall 2001-Spring 2002

Girl Scout Gold Award

Spring 1997

Research Workshops	<p>BAMBA: Biology and Mathematics in the Bay Area Nov 10, 2007 San Jose State University, CA. Workshop participant.</p> <p>Population Ecology in Vernal Pool Systems: Implications for Management and Restoration Mini-Conference Sep 20, 2007 UC Davis, CA. Workshop participant and TA for conference organizers.</p> <p>MAA Math Fest Aug 3-5, 2007 San Jose, CA. Workshop participant.</p> <p>BAMBA: Biology and Mathematics in the Bay Area Nov 4, 2006 Mathematical Sciences Research Institute (MSRI). Berkeley, CA. Workshop participant.</p> <p>Women in Mathematics The Legacy of Ladyzhenskaya and Oleinik May 18-20, 2006 Mathematical Sciences Research Institute (MSRI). Berkeley, CA. Poster presenter.</p> <p>Kearney Foundation of Soil Science May 24, 2005 UC Davis, CA. Poster presenter.</p>
Undergraduate Research Experience	<p>Senior Design Project: Sleep Apnea Environment Innovation Fall 2001-Spring 2002 Worked in a group of three to complete a year long design project. Designed a sleep apnea treatment device system, aimed at elimination of the problems that create treatment noncompliance. Designed and built a soft cap headgear device and a storage unit that are compatible with the current CPAP treatment. Results presented in day-long public conference and in report to sponsoring agencies.</p> <p>NSF REU Research Fellow June 2001- Aug 2001 The Ohio State University. Designed a project to use several computer programs to quantify the morphometrics of the tumor cells. Completed the analysis of data using statistical methods. Results were given in a 25-minute presentation, a poster session, and a published paper. Advisor: Dr. Steve Clinton.</p> <p>Treatment Wetlands for University of Idaho Facilities Management Spring 2001 For the University of Idaho class, Engineering Hydrology, worked in a group of four to design a treatment wetland area. Work included calculating design storms, estimating peak discharge, designing inflow hydrographs and routing the runoff through the wetlands. Results presented in report form for UI Facilities Management.</p> <p>NSF REU Research Fellow Sept 2000-Nov 2000 The Bermuda Biological Station for Research (BBSR). Created and carried out an individual research experience related to marine and molecular biology. Completed a paper and presentation to summarize my results. Advisor: Dr. Hank Trapido Rosenthal.</p> <p>NSF REU Research Fellow June 2000-July 2000 Penn State Erie, The Behrand College. Worked in teams with faculty on mathematical biology projects in the fields of plant morphogenesis, pattern formation in active media, and the modeling of electrically excitable cells. Required individual and group research, analyzing data, and presenting results. Advisors: Dr. Joseph Paullet and Dr. Joe Previte.</p>
Memberships	<p>Resource Modeling Association (RMA), Secretary Society for Industrial and Applied Mathematics (SIAM) Association for Women in Mathematics (AWM) American Mathematical Society (AMS) Mathematical Association of America (MAA) Society for Mathematical Biology (SMB) Tau Beta Pi National Engineering Society</p>

Additional Skills

Languages: Basic Spanish.

Computing Skills: MATLAB, Fortran 77, C++, L^AT_EX, HTML, vim, Word, Excel, Power Point.

Operating Systems: UNIX, Windows, Mac OS X.

Professional Skills: Resilient Program Organization, Committee Coordination, Public Relations, Program Documentation, Financial Management.

Teaching Experience

Assistant, UC Davis CLIMB

Fall 2007, Fall 2006

Collaborative Learning at the Interface of Mathematics and Biology (CLIMB), UC Davis.

Program emphasizes hands-on training using mathematics and computation to answer state-of-the-art questions in biology. Taught an overview of mathematical biology and guided the undergraduates in completing research exploration with 10 different UC Davis researchers. (<http://climb.ucdavis.edu>)

Instructor, Math Modeling Experience (MME)

Aug 2005-Feb 2006

Explore Math, Department of Mathematics, UC Davis.

Organized a series of workshops for high school and undergraduate students, preparing them for the COMAP (Consortium of Mathematics and its Applications) MCM (Mathematical Contest in Modeling) and HiMCM (High School Mathematical Contest in Modeling) competitions. Prepared a series of 2 hour lesson plans to introduce students to math modeling topics including disease and population growth models while providing them with the tools to develop their own models for competition modeling problems. The result of the HiMCM is testament to the success of the 2005 program, with one regional Outstanding, two Meritorious and two Honorable Mention awards. In addition, one of the competing undergraduate teams received National Outstanding.

Teaching Assistant

Fall 2005

Department of Mathematics, UC Davis.

Held office hours, graded technical reports & exams, and did substitute lectures for Numerical Analysis.

Mathematics Tutor

Jan 2001-Dec 2002

POLYA Mathematics Center, University of Idaho.

The POLYA Center is an active learning environment with traditional courses offerings combined with online video lessons, quizzes and an interactive tutoring. I worked with students individually and in groups to compliment their other work.

STEM Outreach Experience

MSRI National Math Circle Coordinator

June 2007- Current

Mathematical Sciences Research Institute (MSRI), Berkeley, CA.

Creating the National Math Circle (NMC) organization and website, providing a support network for mathematical enrichment program directors nationwide. Project involves integrating the directors from across the country to create consensus on governing structure, mission statement and long-term goals. In addition, creation of funding proposals are currently being finalized.

Oakland/ East Bay Math Circle Director

June 2007- Current

Sponsored by Mathematical Sciences Research Institute (MSRI) at Laney College, Oakland, CA.

Created the Oakland/ East Bay Math Circle program, a weekly after-school program for middle and high school teachers and students centered on mathematical exploration and discovery. Duties include program administration, student and teacher recruitment and inviting math professionals to give weekly presentations.

Explore Math Program Coordinator

Nov 2005- Sept 2007

Explore Math, Department of Mathematics, UC Davis.

Co-founded, obtained funding (\$200,000 over five years) and coordinated the Explore Math program, a graduate student taught community enrichment program spanning the academic year and providing mathematical experience for high school and undergraduate students. In this role I guided a group of strong-willed leaders, ensured successful program and funding development, monitored financial management and most importantly created a solid program foundation for the program with documentation, ensuring longevity and sustainability of the program. The program has received national praise and a departmental citation.

Other Service Experience	Graduate Student Community Service Committee (GSCSC): Chair, Founder University of California, Davis.	2005-Current
	Committee provides opportunities for graduate students to involve community service in their research, teaching and personal lives. The committee has provided volunteers to more than 40 events since its founding and is a part of several students research projects. This program has demonstrated my personal community program development skills, specifically how to develop a community-based program that meets the needs of the program creators, sponsors, participants and greater community.	
	Girl Scouts of America	1986-Current
	Currently involved with the local Girl Scout organization as an adult education trainer, older-girl program coordinator, event planner and Studio 2B committee member. Developed ability to lead and teach a diverse range of individuals (age, experience, socioeconomic), a commitment to community and social change and strong organizational skills. Received Girl Scout Gold Award in 1997 for organizing the creation of a pocket park in my hometown, a demonstration of how long I have had a commitment to community development.	
	Galois Group: Member-at-Large Officer	Fall 2003- Spring 2007
	Department of Mathematics, UC Davis. The Galois Group is the student organization for the graduate students in the mathematics department. Served as Galois Group GSA departmental representative for the 2003-2004 and Member-at-Large for the 2004-2005 academic years. Aided organization of the new student orientation, online wiki handbook, student recruitment efforts, and creation of annual graduate student service event.	
Teaching, Community Organizing and Professional Development	Special Session on Mathematics for Teaching: Educating Elementary and Middle School Teachers for Success	Jan 7, 2008 (scheduled)
	2008 Joint Mathematics Meetings (JMM), San Diego, CA. Presenter. "Oakland/East Bay Middle School Math Circle."	
	Math Fest Women Count Conference	Aug 2, 2007
	San Jose, CA. Workshop participant.	
	Changing the Culture of the Academy: Toward a More Inclusive Practice	March 22, 2007
	University of California System-wide Conference, UC Berkeley, Berkeley, CA. Workshop participant.	
	Special Session on Math Circles and Similar Programs	Jan 5, 2007
2007 Joint Mathematics Meetings (JMM), New Orleans, LA. Presenter. "University of California, Davis's Explore Math Program: Graduate students bringing cutting-edge research into the classroom to share with undergraduate and high school students."		
	Transforming the Culture of the Academy: Undergraduate Education and the Multiple Functions of the Research University	Fall 2006
	Sponsored by The Reinvention Center at Stony Brook. Recorder for conference activities. Published special sessions summary in conference proceedings.	
	Symposium on Civic Engagement and Graduate Education	April 24, 2006
	Stanford University, Palo Alto, CA. Recorder.	
	UCD Graduate Studies Professors for the Future (PFTF)	Fall 2005 - Spring 2006
	UC Davis, Davis, CA. Workshop participant. PFTF is a year-long competitive professional development fellowship that strengthens the leadership skills of 13 graduate student scholars. The program includes participation in the <i>Seminar of College Teaching</i> , <i>Seminar on Ethics and Professionalism in the University</i> and the PFTF professional development workshop. In addition, the PFTF project required completion of an individual project. My project focused on graduate student community service involvement (GSCSC).	
	Teaching Resources Center Basic Skills & Complex Issues Series	Fall 2005
	UC Davis, Davis, CA. Workshop participant. Topics included student disabilities, encouraging student interaction, sexual harassment, gender equity, student academic honesty, and using writing in the classroom.	