

TAMARA B. VEENSTRA

CURRICULUM VITAE

Department of Mathematics
University of Redlands
1200 E. Colton Ave
Redlands, CA 92374

Tamara_Veenstra@redlands.edu
909-748-8634

http://newton.uor.edu/facultyfolder/tamara_veenstra

EDUCATION

Ph.D. Mathematics, June 1997, Dartmouth College
Dissertation: *Characterizing Siegel Modular Forms*
Advisor: Thomas Shemanske

A.M. Mathematics, June 1994, Dartmouth College

B.S. Mathematics, May 1992, University of North Carolina at Chapel Hill

PROFESSIONAL EXPERIENCE

Full Professor, University of Redlands, 2011-present, *Associate Professor*, 2003-2011, and *Assistant Professor*, 2001-2003

- Teach undergraduate courses focusing on active learning strategies and ranging in level from general education to upper level mathematics (major) courses. Courses include: Calculus, Abstract Algebra, Real Analysis, Number Theory and History of Mathematics.
- Design and teach new courses including cryptography (one at the first year seminar level and one at the sophomore math major level), the mathematics of origami (general education level), and the mathematics of symmetry and pattern (first year seminar course.)
- Supervise numerous independent studies and student research projects involving the mathematics of cryptography, origami, and other areas.

Senior Staff, Hampshire College Summer Studies in Mathematics, Amherst, MA, Summer 2004.

HCSSiM is an intensive six-week residential math enrichment program for talented high-school students. Taught 3-week maxi course on number theory for the second half of the program. This included 6 contact hours per day M-F, 3 contact hours on Saturdays, numerous staff meetings and occasional one-hour lectures (in addition to class time). Taught students advanced number theory, including algebraic number rings and elliptic curves and modular forms.

Assistant Professor, University of Northern Iowa, 1997-2001

- Taught undergraduate courses ranging from general education to upper level mathematics major courses including Calculus, Modern Algebra, and Number Theory.
- Designed and taught several new courses: analysis for business students, math for biological sciences, (both college algebra courses designed to incorporate applications to make the math more relevant) and an honors (non-major) seminar in cryptology.
- Supervised many independent studies and student research projects with topics including cryptography, generalized Fibonacci sequences, and a variety of other topics.

HONORS AND AWARDS

Invited Conference Participant and Travel Grant Recipient, NSA Women in Mathematics Symposium, May 2009.

Invited Speaker and Travel Grant Recipient, AAAS (American Association for the Advancement of Science) Symposium on "Mathematics of Origami: From the Joys of Recreation to the Frontiers of Research", February 2009.

Cryptography Workshop Funding Recipient, Institute for Pure and Applied Mathematics, UCLA, Fall 2006: Selected to participate in workshop on open problems and research in cryptography.

Provost's Mini-Grant, University of Northern Iowa, Summer 2000: Received funding for a two week project entitled "Integrating Math and Biology: Continuing Course Revision and Teacher Reflection".

AWM Travel Grant, March 2000: Received funding to attend the Automorphic Forms and Related Topics Conference, University of Colorado at Boulder.

Graduate College Project Grant, University of Northern Iowa, Spring 2000: Received funding to conduct study on the effect of the pilot course, Math for the Biological Sciences.

Presidential Scholar Seminar, University of Northern Iowa, Spring 2000: One of six faculty (per year) selected from a university wide pool to design and teach a semester-long Presidential Scholar Seminar.

Project NExT Fellow, 1997-1998: Chosen to be a member of a national program sponsored by MAA and Exxon. The focus of this program is to support young mathematics faculty in their effort to improve the teaching and learning of undergraduate mathematics.

PUBLICATIONS (2004-PRESENT)

"Using Twist Boxes to Study Regular Polygons", with s-m belcastro, in preparation.

"Can Origami Compute The Order of Elements Mod n ?", in preparation.

"Fujimoto, Number Theory, and a New Folding Technique," *Origami⁴: Proceedings of the Fourth International Meeting of Origami Science, Mathematics, and Education*, AK Peters, Natick, MA, 2009.

"Constructing Regular n -gonal Twist Boxes," with s-m belcastro, *Origami⁴: Proceedings of the Fourth International Meeting of Origami Science, Mathematics, and Education*, AK Peters, Natick, MA, 2009.

"Using Geometry to Analyze Origami", Online article at PBS News Hour Extra (Lesson plans for high school teachers that correlate with recent news, in this case, the article "In Paper Folding, Art and Science Align"), March 2009.

http://www.pbs.org/newshour/extra/teachers/lessonplans/math/origami_veenstra.html

"The Matrix Connection: Fibonacci and Inductive Proof," with C. Miller, *Mathematics Teacher*, December 2005, Vol 99, No. 5, pp 328-333.

"College Algebra with Applications: Math for Biology", with C. Miller, *The AMATYC Review*, Spring 2003, Vol. 24, No. 2, pp 15-22.

PUBLICATIONS (2001-2004)

"Visions of Self in the Act of Teaching: Using Personal Metaphors in Collaborative Study of Teaching Practices," with M. Heston, L. Fitzgerald, K. East, and C. Miller, *Teaching and Learning: The Journal of Natural Inquiry & Reflective Practice*, Summer 2002, Vol. 16, No. 3, pp 81-93.

"Fibonacci: Beautiful Patterns, Beautiful Math," with C. Miller, *Mathematics Teaching in the Middle School*, January 2002, pp 298-305.

"Siegel Modular Forms, L-functions, and Satake Parameters," *Journal of Number Theory* **87**, March 2001, pp. 15-20.

SELECTED PRESENTATIONS

The appeal of Origami from a Mathematician's Perspective, faculty forum, University of Redlands, February 2010 and modified for presentation to guests of Board of Trustees, Morey Mansion, February 2010.

Paper folding, Orders of Elements, and Binary Representations of Fractions, MAA invited paper session, AMS/MAA National Meetings, San Francisco, CA, January 2010.

How a Mathematician Looks at Origami and Finds Prime Numbers, invited speaker, AAAS National Conference, Chicago IL, February 2009.

The Vigenere Cipher: A Historical Cipher with a Modern Day Application, AMS/MAA National Meetings, Washington DC, January 2009.

Generalizing Twist Boxes, 4OSME Conference (4th International Conference on Origami in Science, Mathematics and Education), Pasadena CA, September 2006.

A Number Theory Application to Origami, AMS/MAA National Meetings, January 2006, California State Polytechnic University at Pomona, April 2006, 4OSME, Pasadena, September 2006, and CSUB September 2007.

Secret Codes: an Introduction to the Mathematics of Cryptography, Alumni Weekend Presentation, University of Redlands, May 2005.

Visual aids for volumes of revolution and 3D functions in Calculus, AMS/MAA National Meetings, January 2004.

Fibonacci Numbers and Modular Arithmetic, Hampshire College Summer Program in Mathematics (for High School students), July 2003.

An Introduction to Fermat's Last Theorem, Hampshire College Summer Program in Mathematics (for High School students), July 2003.

A Model for Introducing Student Research Opportunities in a Number Theory Class: Matrices and Fibonacci, AMS/MAA National Meetings, January 2003.

SELECTED PRESENTATIONS (CONTINUED)

Issues Surrounding the Value and Impact of Homework Especially as Informed by the Research in Mathematics Education, Project NExT Panel discussion, AMS/MAA National Meetings, January 2003.

How Fermat's Last Theorem Led To Centuries Of Number Theory And How Centuries Of Number Theory Led Back To Fermat's Last Theorem, University of Redlands Math Dept colloquium, October 2002, and UNI colloquium, April 1998.

Redefining College Algebra: Math for Biology, AMS/MAA National Meetings, January 2001.

RECENT SERVICE ACTIVITIES (FALL 2004- PRESENT)

Departmental Service

- Mathematics Department Chair, 2009-present
- Mathematics Search committee, 2008-2009
- Advisor for numerous majors and non-majors, 1997-present
- Co-advisor for math club, 2002-2010
- Maintain Mathematics Department web site, 2002-2010

University Service

- PPC member, 2008-2011, PPC co-chair (2009-2011)
- Unofficial election overseer for 2009-2010. (This year of elections was complicated by lots of new committees and continuity issues, so PPC co-chairs worked closely with Assembly and Nominating Committee Chair (Marjo Mitsutomi) on this issue.
- Participated in interviewing students for Proudian honors program, Fall 2006.
- Co-convener of Untenured Faculty Caucus, 2003-2005

Service to the Profession

- Reviewer:
 - Articles -- Bridges Conference, spring 2009 and Mathematics Magazine, May 2007.
 - cryptography textbooks -- October 2008 and August 2010.
- Organizer, with Tom Hull, Invited Session on Mathematics of Origami at MAA/AMS national conference. Organized and planned all aspects of a three-hour session including inviting speakers. Speakers included Robert Lang, Eric Demaine, Tom Hull, Ileana Streinu, Roger Alperin, and myself. January 2010.
- Motivational Speaker for AAUW Math –Science Program for girls, Redlands, CA, March 2006.