

Jessica K. Sklar

Curriculum Vitae

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- Education** **University of Oregon**, Eugene, OR.
Ph.D. in Mathematics, June, 2001.
Dissertation, *Binomial Rings and Algebras*; advisor, Frank Anderson.
University of Oregon, Eugene, OR.
M.S. in Mathematics, June, 1997.
Swarthmore College, Swarthmore, PA.
B.A. in Mathematics and English, with distinction in Mathematics, June, 1995.
- Research Interests** Abstract algebra, combinatorics, mathematical puzzles and games, the popularization of mathematics, mathematical pedagogy.
- Academic Positions** **Department of Mathematics, Pacific Lutheran University (PLU)**
Associate Professor, Fall 2007 - present.
Assistant Professor, Fall 2001 - Summer 2007.
Department of Mathematics, University of Oregon
Graduate Teaching Fellow, Fall 1995 - Spring 2001.
- Other Mathematical Employment** **Contractor for AccuMedia Publishing Services**, 2005.
Coded online calculus test bank problems, and performed accuracy reviews of test bank problems and presentation slides associated with college algebra, algebra and trigonometry, and calculus texts.
- Awards** **PLU Faculty Excellence in Teaching Award**, 2005-2006.
One recipient per year. Purpose: To recognize a teacher who embodies the qualities of excellent teaching, as measured by such skills as the ability to communicate knowledge effectively, to inspire in students a love of learning, and the willingness to go “above and beyond” in working with students in and outside of class.
Johnson Research Fellowship, Summer 2000.
Awarded to an outstanding graduate student in his/her penultimate year.
- Teaching Experience** I have taught the following classes:
Senior Capstone Seminar **Advanced Topics in Abstract Algebra**
Abstract Algebra **Independent Study in Topology**
Geometry **Introduction to Probability & Statistics**
Calculus I,II, III **Introduction to Linear Models & Calculus**
Discrete Mathematics **Linear Algebra**
Plane Trigonometry **College Algebra**
Imaging the World **University Mathematics I,II**
Introduction to \LaTeX
- I have also been the advisor for ten students’ **Mathematics Capstone** projects (topics have included the Riemann hypothesis, computational group theory, topology, Galois theory, category theory, cryptography, tilings, and the Rubik’s Cube), and the advisor for a **Women’s Studies Capstone Project**, for which my advisee evaluated gender equity within PLU’s computer-related resources.
- Computer Skills** Mathematica, Maple, GAP, \LaTeX , Java, C++, HTML.

- Grants** **Co-Principal Investigator for National Science Foundation Grant**,
 “Adapting WeBWorK Internet-Based Gateway Exams and Maple PowerTools to Introduce Appropriate Use of Technology in the First Two Semesters of Calculus,”
 DUE-0311745, 2003-present, \$141,602.
- Publications**
- [1] “The graph menagerie: abstract algebra and the Mad Veterinarian.” Submitted to *Mathematics Magazine*. (With Gene Abrams.) Peer-reviewed, national publication.
 - [2] “Symmetric and alternating groups generated by a full cycle and another element.” To appear in *The American Mathematical Monthly*. (With Daniel Heath, I.M. Isaacs, and John Kiltinen.) Peer-reviewed, international publication.
 - [3] “The ideal vacuum: visual metaphors for algebraic concepts.” *Proceedings of the International Conference of Bridges: Mathematical Connections in Art, Music, and Science* (2007), 241-246. Peer-reviewed, international publication.
 - [4] “Dials and levers and glyphs, oh my! Linear algebra solutions to computer game puzzles.” *Mathematics Magazine* **79(5)** (2006), 360-367. Peer-reviewed, national publication.
 - [5] “Binomial rings.” *Communications in Algebra* **32(4)** (2004), 1385-1399. Peer-reviewed, international publication.
 - [6] “Binomial algebras.” *Communications in Algebra* **30(4)** (2002), 1961-1978. Peer-reviewed, international publication.
 - [7] “If rooks could kill: vertex degrees in random bipartite graphs.” *Combinatorics, Graph Theory and Algorithms, Vol 2, Proceedings of the Eighth Quadrennial International Conference on Graph Theory, Combinatorics, Algorithms and Applications*, ed. by Y. Alavi, D. R. Lick and A. Schwenk, New Issues Press, Kalamazoo (1999), 445-450. (With A. Godbole and B. Lamorte.) International publication.
 - [8] “Improved upper bounds for the reliability of d-dimensional consecutive k-out-of-n F: systems.” *Naval Research Logistics* **45** (1998), 219-230. (With A. Godbole and L. Potter.) Peer-reviewed, national publication.
 - [9] Implemented computer programs in Mathematica and Maple, and contributed to the solution manual, for the text: C. L. Grinstead and J. L. Snell, *Introduction to Probability* (2nd ed.), American Mathematical Society, Providence, 1997.
- Mathematical Service**
- PLU Mathematics Seminar Co-coordinator**, Fall 2007 - present.
 - PLU Mathematics Departmental Liaison to Computer Science**,
 Fall 2004 - present.
 - PLU Mathematics Department Curriculum Review Committee Member**,
 Fall 2007 - present. (Also Fall 2002 - Spring 2005.)
 - Library Liaison for PLU Mathematics Department**, Fall 2004 - present.
 (Also Fall 2002 - Fall 2003.)
 - Webmistress for PLU Mathematics Department**, Fall 2004 - present.
 (Also Fall 2002 - Fall 2003.)
 - Putnam Examination Coach**, Fall 2008. (Also Fall 2003 and Fall 2006.)
 - PLU Mathematics Department Liaison to the MAA[†]**, Fall 2001 - Summer 2008.
 - [†] See Professional Memberships section for such acronym identifications.
 - PLU Mathematics Club Faculty Advisor**, Fall 2003 - Summer 2007.
 - Judge, Joint Mathematics Meetings Undergraduate Poster Session**, 2007.
 - Textbook Reviewer for Houghton Mifflin**, 2005.
 - PLU Mathematics Department Calculus Book Committee Member**,
 Fall 2003 - Spring 2004.
 - Textbook Reviewer for John Wiley & Sons, Inc.**, 2003.
 - Referee for *Communications in Algebra***, 2001.

**University
Service**

PLU Transitional Advisor, Fall 2003 - present.

PLU Major Advisor, Fall 2004 - present.

Member of PLU Women's and Gender Studies Committee
(formerly the Women's Studies Committee), Fall 2002 - present.

Member of PLU Academic Festival Planning Committee, Fall 2008 - present.
(Also Fall 2005 - Spring 2007.)

Library Liaison for PLU Women's and Gender Studies Committee,
Fall 2002 - Summer 2008.

Secretary of University Review Board, Fall 2007 - Spring 2008.

**Faculty workshop panel participant: Capstone as Assessment for the
Major**, March 12, 2008.

Co-Chair of PLU Campus Life Committee, Fall 2006 - Summer 2007.

Member of PLU Campus Life Committee, Fall 2005 - Spring 2008.
(Also Spring 2004.)

Member of PLU International Honors Program Committee
(formerly the International Core Committee), Fall 2006 - Spring 2008.

Member of PLU Regents' Scholarship Selection Committees,
2004-2007.

Faculty Excellence Awards Selection Committee, 2006.

Member of PLU English Department Faculty Search Committees,
2004 and 2006.

Talks

Willamette University Mathematics Colloquium (invited)
"Defeating the Robot and Unlocking Doors: Mathematical Solutions to Computer
Game Puzzles," November 1, 2007, Salem, OR.

Parametrix Inc. Brown Bag Event (invited)
"Spain, France, Math and Art!" September 25, 2007, Seattle, WA.

The Bridges Conference:
Mathematical Connections in Art, Music, and Science
"The Ideal Vacuum: Visual Metaphors for Abstract Algebraic Concepts," July 26,
2007, School of Architecture, University of the Basque Country, San Sebastian,
Spain. This talk was on an in-progress art project that I lead. A portion of the
project was also on display in the conference art exhibit.

University of Puget Sound Math/CS Seminar Series (invited)
"Defeating the Robot and Unlocking Doors: Mathematical Solutions to Computer
Game Puzzles," March 21, 2007, Tacoma, WA.

2006 Joint Mathematics Meetings
"A Comparison of Online Homework Systems," January 7, 2007, New Orleans, LA.
(With Mei Zhu.)

Joint PLU Mathematics and PLU Computer Enthusiasts Colloquium
"Introduction to L^AT_EX," October 12, 2005, Tacoma, WA.

PLU Mathematics Colloquium
"Switches, Fuses, and Glyphs: Using Mathematics to Solve Computer Game Puz-
zles," March 30, 2005; "Jumbled Paths: The Structure of Binomial Algebras,"
November 19, 2003, Tacoma, WA.

AMS Special Session on Associative Rings and their Modules (invited)
"Binomial Rings," October 4, 2003, Boulder, CO.

2002 Joint Mathematics Meetings

“Binomial Rings,” January 8, 2002, San Diego, CA.

Linfield College Mathematics Colloquium (invited)

“Quivers and their Path Algebras,” November 29, 2001, Linfield, OR.

2001 Joint Mathematics Meetings

“Binomial Algebras and Rings,” January 13, 2001, New Orleans, LA.

AMS Special Session on Representation Theory (invited)

“Binomial Algebras,” March 11, 2000, Santa Barbara, CA.

University of Oregon Ring Theory Seminar “Binomial Rings,” October 24, 2000; “Automorphisms of Binomial Algebras,” February 22, 2000; “Binomial Algebras,” November 9, 1999; “D-Algebras in Disguise,” March 2, 1999; “Through the Looking Glass: Cosemisimplicity,” May 19, 1998; “Lifting Idempotents,” March 3, 1998, Eugene, OR.

Conferences and Workshops **2008 National Popular Culture Association/ American Culture Association Conference**

March 19-23, 2008, San Francisco, CA.

The Bridges Conference:**Mathematical Connections in Art, Music, and Science**

July 24-27, 2007, School of Architecture, University of the Basque Country, San Sebastian, Spain.

2006 Joint Mathematics Meetings

January 5-8, 2007, New Orleans, LA.

The Bridges Conference:**Mathematical Connections in Art, Music, and Science**

August 4-8, 2006, The Institute of Education, London, England.

Annual Meeting of the Pacific Northwest Section of the MAA

April 1-2, 2005, University of Puget Sound, Tacoma, WA.

International Conference on Technology in Collegiate Mathematics

October 28-31, 2004, New Orleans, LA.

AMS Special Session on Associative Rings and their Modules

October 3-4, 2003, UC Boulder, Boulder, CO.

MAA Professional Enhancement Program online workshop, “Abstract Algebra with GAP”

July 14-18, 2003, run from St. Louis University, St. Louis, MO.

2002 Combinatorial Potlatch

February 16, 2002, University of Puget Sound, Tacoma, WA.

2002 Joint Mathematics Meetings

January 6-9, 2002, San Diego, CA.

2001 Joint Mathematics Meetings

January 10-13, 2001, New Orleans, LA.

EDGE (Enhancing Diversity in Graduate Education) 2000

June 16-17, 2000, Bryn Mawr College, Bryn Mawr, PA. Panelist.

AMS Special Session on Representation Theory

March 11-12, 2000, UC Santa Barbara, Santa Barbara, CA.

2000 Joint Mathematics Meetings

January 19-22, 2000, Washington, DC.

Professional Memberships

American Mathematical Society (AMS)
Mathematical Association of America (MAA)
Association for Women in Mathematics (AWM)