

Jessica K. Sklar

Curriculum Vitae

Pacific Lutheran University
Tacoma, WA 98447
Phone: (253) 535-8341
Fax: (253) 535-8700

sklarjk@plu.edu
<http://www.plu.edu/~sklarjk>

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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.
- 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.
- Awards** **Mathematics Association of America Carl B. Allendoerfer Award**, 2011.
Co-recipient with coauthor Gene Abrams for our article “The graph menagerie: abstract algebra and the Mad Veterinarian” (see **Publications**, next page). Awarded for articles of expository excellence published in *Mathematics Magazine*. One to two recipients per year.
- PLU Faculty Excellence in Teaching Award**, 2005 – 2006.
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. One recipient per year.
- Johnson Research Fellowship**, Summer 2000.
Awarded to an outstanding graduate student in his/her penultimate year.
- 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 – 2009, \$141,602.
- Teaching Experience** I have taught the following courses:
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| 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 |
| Analytic Geometry and Functions | Introduction to L^AT_EX |

Publications

- [1] Coeditor (with Elizabeth Sklar) of *Mathematics in Popular Culture: Essays on Appearances in Film, Fiction, Games, Television and Other Media*, forthcoming from McFarland & Co., Spring 2012.
- [2] “Thinking outside the box: application versus discovery in *Saw* and *Cube*.” To appear in *Mathematics in Popular Culture: Essays on Appearances in Film, Fiction, Games, Television and Other Media*. (See above.)
- [3] “The graph menagerie: abstract algebra and the Mad Veterinarian.” *Mathematics Magazine* **83(3)** (2010), 168 – 179. (With Gene Abrams.) Peer-reviewed, national publication.
- [4] “Symmetric and alternating groups generated by a full cycle and another element.” *The American Mathematical Monthly* **166(5)** (2009), 447 – 451. (With Daniel Heath, I.M. Isaacs, and John Kiltinen.) Peer-reviewed, international publication.
- [5] “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.
- [6] “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.
- [7] “Binomial rings.” *Communications in Algebra* **32(4)** (2004), 1385 – 1399. Peer-reviewed, international publication.
- [8] “Binomial algebras.” *Communications in Algebra* **30(4)** (2002), 1961 – 1978. Peer-reviewed, international publication.
- [9] “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.
- [10] “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.
- [11] 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.

Professional Memberships

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

Computer Skills

Mathematica, Maple, GAP, L^AT_EX, Java, C++, HTML.

Professional Service

Referee for *The American Mathematical Monthly*, 2011 – 2012; *Mathematics Magazine*, 2010 – 2011; and *Communications in Algebra*, 2001.

Judge, MAA[†] MathFest Student Paper Presentations, 2011.

[†] See Professional Memberships section, above, for such acronym identifications.

Judge, Joint Mathematics Meetings Undergraduate Poster Session, 2007.

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.

Textbook Reviewer for Houghton Mifflin, 2005 and John Wiley & Sons, Inc., 2003.

PLU Departmental Service

Liaison to Computer Science Department, Fall 2004 – present.

Chair of Colleague's Third-Year Review Committee, Fall 2011 – present.

Linear Algebra Review Committee Member, Fall 2011 – present.

Curriculum Review Committee

Chair, Fall 2011 – present.

Member, Fall 2007 – present. (Also Fall 2002 – Spring 2005.)

Library Liaison, Fall 2004 – Summer 2009. (Also Fall 2002 – Fall 2003.)

Webmistress, Fall 2004 – Summer 2009. (Also Fall 2002 – Fall 2003.)

Mathematics Colloquium Co-coordinator, Fall 2007 – Spring 2009.

Mathematics Faculty Search Committee Member, Fall 2008 – Spring 2009.

(Also Fall 2001-Spring 2002.)

Putnam Examination Coach, Fall 2008. (Also Fall 2003 and Fall 2006.)

Liaison to the MAA, Fall 2001 – Summer 2008.

Mathematics Club Faculty Advisor, Fall 2003 – Summer 2007.

Calculus Book Committee Member, Fall 2003 – Spring 2004.

PLU University Service

Governance Committee

Secretary, Fall 2011 – present.

Major Advisor, Fall 2004 – present.

Transitional Advisor, Fall 2011 – present. (Also Fall 2003 – Spring 2009.)

Women's and Gender Studies Committee

Member and Library Liaison, Fall 2002 – Summer 2008.

Academic Festival Planning Committee Member, Fall 2008 – Spring 2009.

(Also Fall 2005-Spring 2007.)

University Review Board

Secretary, Fall 2007 – Spring 2008.

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

Campus Life Committee

Cochair, Fall 2006 – Summer 2007.

Member, Fall 2005 – Spring 2008. (Also Spring 2004.)

International Honors Program [International Core] Committee Member,

Fall 2006 – Spring 2008.

Regents' Scholarship Selection Committee Member, 2004 – 2007.

Faculty Excellence Awards Selection Committee Member, 2008 (also 2006).

English Department Faculty Search Committee Member, 2004 and 2006.

**Talks and
Panel Service****Panel Organizer and Member, “Mathematics in Science Fiction”**

Norwescon 2012, date TBA, Seattle, WA.

Northwest Undergraduate Mathematics Symposium (invited keynote speaker)

“Dials and Levers and Glyphs, Oh My! Mathematical Solutions to Computer Game Puzzles,” March 10, 2012; Lewis & Clark College, Portland, OR.

Panel Member (invited), “Writing, Refereeing, and Publishing: Contributing to the Mathematical Conversation”

Presented by Project NExT, Joint Mathematics Meetings, January 5, 2011, Boston, MA.

PLU Mathematics Colloquia

“The Graph Menagerie: Abstract Algebra and the Mad Veterinarian,” November 19, 2008; “Switches, Fuses, and Glyphs: Using Mathematics to Solve Computer Game Puzzles,” March 30, 2005; “Jumbled Paths: The Structure of Binomial Algebras,” November 19, 2003; Tacoma, WA.

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 \LaTeX ,” October 12, 2005, 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**
- 2012 Joint Mathematics Meetings**
January 3 – 7, 2012, Boston, MA.
- MAA MathFest 2011**
August 4 – 6, 2011, Lexington, KY.
- 2009 Joint Mathematics Meetings**
January 4 – 9, 2009, Washington, DC.
- 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.