

# Jessica K. Sklar

## Curriculum Vitae

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

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

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- Education**      **Ph.D. in Mathematics**, University of Oregon, Eugene, OR, June 2001.  
Dissertation: *Binomial Rings and Algebras*. Advisor: Frank Anderson.  
**M.S. in Mathematics**, University of Oregon, Eugene, OR, June 1997.  
**B.A. in Mathematics and English**, with distinction in Mathematics, Swarthmore College, Swarthmore, PA, June 1995.
- Research Interests**      Abstract algebra, recreational mathematics, communicating and popularizing 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 and Honors**      **Author of the Month at Ada’s Technical Books**, July 2012, Seattle, WA.  
Selected by a Seattle technical bookstore as its July 2012 Author of the Month. The bookstore hosts a lecture and book-signing by each such author, and presents a month-long display of the author’s works, as well as 5–10 works recommended by the author.  
**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**, 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 Mathematical Association of America Regional Undergraduate Mathematics Conferences Program Grant**,  
“Northwest Undergraduate Mathematics Symposium,” DMS-0846477, 2012, \$2300.  
**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.
- Computer Skills**      Mathematica, Maple, GAP, L<sup>A</sup>T<sub>E</sub>X, Java, C++, HTML.

**Teaching Experience**

I have taught the following courses:

**Senior Capstone Seminar**

**Abstract Algebra**

**Geometry**

**Calculus I,II, III**

**Discrete Mathematics**

**Plane Trigonometry**

**Imaging the World**

**Analytic Geometry and Functions**

**Advanced Topics in Abstract Algebra**

**Independent Study in Topology**

**Introduction to Probability & Statistics**

**Introduction to Linear Models & Calculus**

**Linear Algebra**

**College Algebra**

**University Mathematics I,II**

**Introduction to  $\LaTeX$**

**Publications**

- [1] “Shedding the Light on Confused Electrician Problems.” In preparation for submission to *Mathematics Magazine*. (With Tom Edgar.)
- [2] Coeditor (with Elizabeth S. Sklar) of *Mathematics in Popular Culture: Essays on Appearances in Film, Fiction, Games, Television and Other Media*. Jefferson, NC: McFarland & Co., 2012.
- [3] “Thinking outside the box: application versus discovery in *Saw* and *Cube*.” *Mathematics in Popular Culture: Essays on Appearances in Film, Fiction, Games, Television and Other Media*. (See above.)
- [4] “The graph menagerie: abstract algebra and the Mad Veterinarian.” *Mathematics Magazine* **83(3)** (2010), 168–179. (With Gene Abrams.) Peer-reviewed, national publication.
- [5] “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.
- [6] “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.
- [7] “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.
- [8] “Binomial rings.” *Communications in Algebra* **32(4)** (2004), 1385–1399. Peer-reviewed, international publication.
- [9] “Binomial algebras.” *Communications in Algebra* **30(4)** (2002), 1961–1978. Peer-reviewed, international publication.
- [10] “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.
- [11] “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.
- [12] 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.

**PLU  
University  
Service****Faculty and University Standing Committees**

- Governance Committee  
Secretary, Fall 2011–Summer 2012.
- Campus Life Committee  
Co-chair, Fall 2006–Summer 2007.  
Member, Fall 2005–Spring 2008. (Also Spring 2004.)
- University Review Board  
Secretary, Fall 2007–Spring 2008.

**Other Committees**

- Psychology Department Faculty Search Committee Member,  
Fall 2014–Spring 2015.
- Common Reading Book Selection Committee, Spring 2014–Spring 2015.
- 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.)
- 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.

**Academic Advisor**

- Major Student Advisor, Fall 2004–present.
- Non-major Student Advisor, Fall 2011–present.  
(Also Fall 2003–Spring 2009.)

**PLU  
Departmental  
Service****Departmental Committees**

- Curriculum Review Committee  
Chair, Fall 2014–present. (Fall 2011–Spring 2012.)  
Member, Fall 2007–present. (Also Fall 2002–Spring 2005.)
- Linear Algebra Review Committee, Fall 2011–Fall 2014.
- Calculus Book Committee  
Chair, Fall 2011–present.  
Member, Fall 2003–Spring 2004.
- Tom Edgar’s Third-Year Review Committee  
Chair, Fall 2011–Spring 2012.
- Mathematics Faculty Search Committee, Fall 2008–Spring 2009.  
(Also Fall 2001–Spring 2002.)

**Liaison to Computer Science Department**, Fall 2012–present.  
(Also Fall 2004–Spring 2009.)

**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.

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

**Liaison to the Mathematical Assoc. of America**, Fall 2001–Summer 2008.

**Mathematics Club Faculty Advisor**, Fall 2003–Summer 2007.

**Professional Service**

Mathematical Assoc. of America Book Reviewer, 2012–present.  
 Referee for *Mathematics Magazine*, 2010–2015; *The American Mathematical Monthly*, 2011–2012; and *Communications in Algebra*, 2001.  
 Activity Leader, Julia Robinson Mathematics Festival for 4th–12th graders in Shoreline, WA, March 18, 2012. (Volunteer.)  
 Judge, MAA MathFest Student Paper Presentations, 2011.  
 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.

**Talks****Willamette Valley REU-RET Consortium for Math Research (invited)**

“Illuminating Confused Electrician Problems,” July 8, 2014, Linfield College, McMinnville, OR.

**2012 Meeting of the BABEL Working Group (invited)**

“Cabbages and Kings: Mathematics and the Humanities,” September 22, 2012, Northeastern University, Boston, MA. (With Elizabeth S. Sklar.) Presented by Amy Kaufman, Middle Tennessee State University. (A medical emergency kept my co-speaker and I from attending the conference.)

**July 2012 Author of the Month Lecture (invited)**

“Prime Time: Mathematics and Popular Culture,” July 12, 2012, Ada’s Technical Books, 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.

**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 L<sup>A</sup>T<sub>E</sub>X,” 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.

**Panel Service****Mathematics in Science Fiction and Fantasy**

Organizer and moderator. Westercon 2012, July 6, 2012, Seattle, WA.

**Mathematics in Popular Culture**

Organizer and member. Norwescon 2012, April 6, 2012, Seattle, WA.

**Writing, Refereeing, and Publishing (invited)**

Member. Joint Mathematics Meetings, January 5, 2011, Boston, MA.  
(Organized by Project NExT.)

**Capstone as Assessment for the Major**

Invited. PLU Faculty Workshop, March 12, 2008.

**Conferences  
Attended**

**PNW MAA & NUMS 2015**, April 10–11, 2015, Tacoma, WA.

**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 Assoc./American Culture Assoc. Conf.**,  
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 Mathematical Assoc. of America**, 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, hosted at 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.

**Community Service**

- Participant in Northwest Hope & Healing Alki Beach 5k**, 2013 and 2014.  
This 5k raises money for and awareness of Northwest Hope & Healing, which provides financial assistance to women in need who are battling breast and gynecological cancer at the Swedish Cancer Institute.
- Volunteer, Fare Start**, 2008.  
A Seattle-based job training and placement program for homeless and disadvantaged individuals.
- Panel Member, PLU Women’s Center “Bold and Beautiful” Event**, 2006.  
Five PLU women shared their personal “bold and beautiful” moments.
- Participant in the Danksin Triathlon**, 2006.  
This triathlon donates a portion of its entry fees to the Breast Cancer Research Foundation, and has a pledge program devoted to the same charity, and to the National Association of Team Survivor (an association aimed at helping women cancer survivors to train for and participate in their first triathlon).