Jessica K. Sklar
Curriculum Vitae

Department of Mathematics
Pacific Lutheran University
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Creative Portfolio

Education

Ph.D. in Mathematics, June 2001, University of Oregon, Eugene, OR

Dissertation: *Binomial Rings and Algebras*
Ph.D. Advisor: Frank Anderson

M.S. in Mathematics, June 1997, University of Oregon, Eugene, OR
B.A. in Mathematics and English, June 1995, Swarthmore College, Swarthmore, PA

Academic Positions

Department of Mathematics, Pacific Lutheran University

Professor, September 2018–present
Chair, September 2015–June 2016; September 2017–June 2019
Associate Professor, September 2007–August 2018
Assistant Professor, September 2001–August 2007

Department of Mathematics, University of Oregon

Graduate Teaching Fellow, September 1995–June 2001

Awards & Honors

Honorable mention, 2020 NYC Midnight Flash Fiction Challenge.

Wikipedia recognition

Added to Wikipedia's list of "women who have made noteworthy contributions to or achievements in mathematics" by Eppstein, D., 14 Nov 2018. https://en.wikipedia.org/wiki/List_of_women_in_mathematics

Wikipedia biographical entry "Jessica Sklar" created by Eppstein, D., 14 Nov 2018. https://en.wikipedia.org/wiki/Jessica_Sklar

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 hosted a lecture and book-signing by each such author, and presented a month-long display of the author's works, as well as 5–10 works recommended by the author.

Mathematical 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). Awarded for articles of expository excellence published in *Mathematics Magazine*. One to two recipients per year.

Pacific Lutheran University 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.

Publications

Books

First-Semester Abstract Algebra: A Structural Approach. Published under the GNU Free Documentation License, 2017.

Mathematics in Popular Culture: Essays on Appearances in Film, Fiction, Games, Television and Other Media. Jefferson, NC: McFarland & Co., 2012. Editor, with E. Sklar.

Reviews of *Mathematics in Popular Culture*

Kozek, M. *The American Mathematical Monthly*, MAA, **121(3)**, Mar 2014, pp. 274–278.
Karaali, G. *AWM Newsletter* **43(6)**, Association for Women in Mathematics , Nov–Dec 2013, p. 25.
Ashbacher, C. *MAA Reviews*, MAA, 6 Nov 2012.
Johnson, J. *CHOICE Reviews* **50(1)**, Association of College & Research Libraries, Sep 2012, p. 201.
Sterling, C. *Communication Booknotes Quarterly* **43(3)**, Taylor & Francis, Jul–Sep 2012, p. 140.

Articles, Book Chapters, and Blog Post

"Math, Art, Abstraction: A Conversation with Bronna Butler." *Math Horizons*. 28:3 (2021), 8–11.

"Gardner Gems," with Bronna Butler. *Math Horizons*. 28:3 (2021), 35.

"Tess the Tortoise's Story." *Mathemalchemy*. 29 October 20. Blog post.

"'Bok bok': exploring the game of Chicken in film," with Jennifer F. Nordstrom. In: *Handbook of the Mathematics of the Arts and Sciences*. Ed. Bharath Sriraman. Springer International Publishing, Cham. 2020.

"'Elegance in design': mathematics and the works of Ted Chiang." In: *Handbook of the Mathematics of the Arts and Sciences*. Ed. Bharath Sriraman. Springer International Publishing, Cham. 2020.

"A confused electrician uses Smith normal form," with T. Edgar. *Mathematics Magazine* **89**(1) (2016), 3–13. Peer-reviewed, national publication.

"Thinking outside the box: application versus discovery in *Saw* and *Cube*." In: *Mathematics in Popular Culture: Essays on Appearances in Film, Fiction, Games, Television and Other Media*. Jefferson, NC: McFarland & Co., 2012.

"The graph menagerie: abstract algebra and the Mad Veterinarian," with G. Abrams. *Mathematics Magazine* **83**(3) (2010), 168–179. Peer-reviewed, national publication.

"Symmetric and alternating groups generated by a full cycle and another element," with D. Heath, I.M. Isaacs, and J. Kiltinen. *The American Mathematical Monthly* **166**(5) (2009), 447–451. Peer-reviewed, international publication.

"The ideal vacuum: visual metaphors for algebraic concepts." In: *Proceedings of the International Conference of Bridges: Mathematical Connections in Art, Music, and Science* (2007), 241–246. Peer-reviewed, international publication.

"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.

"Binomial rings." *Communications in Algebra* **32**(4) (2004), 1385–1399. Peer-reviewed, international publication.

"Binomial algebras." *Communications in Algebra* **30**(4) (2002), 1961–1978. Peer-reviewed, international publication.

"If rooks could kill: vertex degrees in random bipartite graphs," with A. Godbole and B. Lamorte. *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. International publication.

"Improved upper bounds for the reliability of d-dimensional consecutive k-out-of-n F: systems," with A. Godbole and L. Potter. *Naval Research Logistics* **45** (1998), 219–230. Peer-reviewed, national publication.

Book Reviews

Review of *The Manga Guide to Linear Algebra*, by Inoue Iroha and Shin Takahashi, *MAA Reviews*, 2012.

Review of *A Transition to Mathematics with Proofs*, by Michael J Cullinane, *MAA Reviews*, 2012.

Other

Edited the OEIS Sequence A059756, 30 Jan 19.

"PreTeXt for Novices Using Windows." Published under the GNU Free Documentation License, 2017. Available at http://mathbook.pugetsound.edu/doc/pnw/html/novices.html. Tutorial for PreTeXt novices using Windows operating systems.

"Disciple." *Journal of Humanistic Mathematics* **7(2)** (July 2017), 418. Poem. Peer-reviewed, national publication.

Implemented probabilistic simulations in Mathematica and Maple and contributed to the solutions manual for C. L. Grinstead and J. L. Snell's text *Introduction to Probability* (2nd ed.), American Mathematical Society, Providence, 1997.

Mathematical Art

Member of the Mathemalchemy Team.

Designing an art installation that will tour and then be permanently on display at Duke University. Project funded via a Simons Foundation grant awarded to Duke University (co-PI's Ingrid Debauchies, Dominique Ehrmann, and Dorothy Buck). https://mathemalchemy.org/

Additive Mixing, 58 × 113 cm, pastel drawing and graphic print on aluminum panel, 2020. With Bronna Butler.

Selected for the Joint Mathematics Meetings Exhibition of Mathematical Art, online, January 2021.

Teaching Experience

Pacific Lutheran University

MATH 107: Mathematical Explorations: Cryptgraphy
MATH 111: College Algebra
MATH 112: Plane Trigonometry
MATH 140: Precalculus
MATH 128: Introduction to Linear Models & Calculus
MATH 151: Introduction to Calculus
MATH 152: Calculus II
MATH 245: Discrete Mathematics
MATH 321: Geometry
MATH 331: Linear Algebra
MATH 381: Seminar in Problem Solving
MATH 433: Abstract Algebra
MATH 480: Advanced Topics in Abstract Algebra
MATH 455: Mathematical Analysis
MATH 480: Introduction to LaTeX
MATH 491: Independent Study in Topology
MATH 499: Senior Capstone
INTC 234: Imaging the World

University of Oregon

MATH 105: University Mathematics I
MATH 106: University Mathematics II
MATH 111: College Algebra
MATH 112: Elementary Functions
MATH 233: Discrete Mathematics III
MATH 241: Business & Social Science Calculus I
MATH 243: Introduction to Probability & Statistics
MATH 251: Calculus I
MATH 252: Calculus II
MATH 253: Calculus III
MATH 341: Elementary Linear Algebra

Computer Skills

Proficient C++, Sage, LaTeX, PreTeXt, HTML, Java.

Presentations

Invited

Seattle University Mathematics Colloquium
Money! Mystery! Murder! Madness! Metaphor! (and Mathematics), March 8, 2018.

Willamette Valley REU-RET Consortium for Math Research, Linfield College

Illuminating Confused Electrician Problems, July 8, 2014.

2012 Meeting of the BABEL Working Group, Northeastern University
Cabbages and Kings: Mathematics and the Humanities, September 22, 2012. (With Elizabeth S. Sklar.) Presented by Amy Kaufman, Middle Tennessee State University. (A medical emergency kept my co-speaker and me from attending the conference.)

July 2012 Author of the Month Lecture, Ada's Technical Books, Seattle, WA
Prime Time: Mathematics and Popular Culture, July 12, 2012.

Northwest Undergraduate Mathematics Symposium Keynote Address, Lewis & Clark College
Dials and Levers and Glyphs, Oh My!, March 10, 2012.

Mathematics Colloquium, Willamette University
Defeating the Robot and Unlocking Doors, November 1, 2007.

Brown Bag Event, Parametrix, Inc., Seattle, WA
Spain, France, Math and Art, September 25, 2007.

Math/CS Seminar Series, University of Puget Sound
Defeating the Robot and Unlocking Doors, March 21, 2007.

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

Mathematics Colloquium, Linfield College
Quivers and their Path Algebras, November 29, 2001.

AMS Special Session on Representation Theory, Santa Barbara, CA
Binomial Algebras, March 11, 2000.

Contributed

AMS-MAA Joint Mathematics Meetings, Denver, CO
Cinematic Chicken: A Friendly Introduction to Game Theory, January 15, 2020.
(With Jennifer Firkins Nordstrom.)

Pacific Lutheran University Mathematics Seminar
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.

The Bridges Conference: Math. Connections in Art, Music, & Science, University of the Basque Country
The Ideal Vacuum: Visual Metaphors for Abstract Algebraic Concepts, July 26, 2007.
This talk was on a mathematical art project that was also on display in the conference art exhibit.

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

Pacific Lutheran University Joint Mathematics and Computer Enthusiasts Colloquium
Introduction to LaTeX, October 12, 2005.

AMS-MAA Joint Mathematics Meetings, San Diego, CA
Binomial Rings, January 8, 2002.

AMS-MAA Joint Mathematics Meetings, New Orleans, LA
Binomial Algebras and Rings, January 13, 2001.

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.

Panel Participation

PLU Physics Club, Pacific Lutheran University
Women in STEM, April 25, 2018

Seattle Expanding Your Horizons Conference, Seattle University
Supporting Girls in STEM Inside and Outside the Classroom, March 12, 2016

Westercon (Regional Science Fiction and Fantasy Convention), Seattle, WA
Mathematics in Science Fiction and Fantasy (organizer, moderator), July 6, 2012

Norwescon (Northwest Science Fiction and Fantasy Convention), Seattle, WA
Mathematics in Popular Culture (organizer), April 6, 2012

AMS-MAA Joint Mathematics Meetings (organized by Project NExT), Boston, MA
Writing, Refereeing, and Publishing: Contributing to the Mathematical Conversation, January 5, 2011

Faculty Workshop, Pacific Lutheran University
Capstone as Assessment for the Major, March 12, 2008

Enhancing Diversity in Graduate Education Conference, Bryn Mawr College
Women in Mathematics, June 16, 2000

Capstones Advised

Polynomial Rings and Connections with Common Core Math Standards, Andrew Curran, 2020.

Group Actions: Burnside's Counting Theorem, Corey Ng, 2020.

Fermat's Little Theorem and Euler's Theorem, Isiah Behner, 2018.

Counting Using Group Actions, Taylor Gahr, 2018.

Complex Numbers and Their Representations, Amelia Pernell, 2018.

Error Detection and Correction, Alan Perry, 2015.

The Rubik's Cube: A A Hands-On Approach to Group Theory, Greg Bishop, 2014.

Juggling Mathematics, Joshua McBeath, 2014.

A Mathematical Analysis of (m, n, k) *Games*, Matthew Christopher, 2012.

Coins in pLand, Nathan Gartner, 2012.

Group Actions and Burnside's Theorem, Nicole Griesmeyer, 2009.

Path Homotopies and the Fundamental Group, Sean McQueen, 2008.

An Introduction to Point-set Topology and the Fundamental Group, Morgan Keys, 2007.

Emmy Noether and Noetherian Rings, Whitney-Rose Levis, 2007.

Penrose Tilings, Jennifer Stoops, 2007.

Categories, Functors, and Natural Transformations, Oh My! An Introduction to Category Theory, Eric Finseth, 2005.

From Checkboards to Symmetry Groups: Tilings and Abstract Algebra, Elizabeth Jacobson, 2005.

The Building Blocks of Math: Prime Numbers and the Riemann Hypothesis, Kevin Roberts, 2004.

Galois' Gem, Bryce Bockman, 2003.

Error Detecting and Correcting Codes, James Sowell, 2003.

Wonders of Rubik's Cube, Ted Buzzelli, 2002.

Permutation Group Algorithms, Ruth Vanderpool, 2002.

Pacific Lutheran University Service

Faculty and University Standing Committees

Governance Committee secretary, 2011–2012
Campus Life Committee
Co-chair, 2006-2007
Member, 2004, 2005–2008
University Review Board secretary, 2007–2008

Other Non-Departmental Committees

School of Business Faculty Search Committee member, 2018–2020
Interdisciplinary Statistics Committee
Chair, 2018–2019
Member, 2017–2019
Psychology Department Faculty Search Committee member, 2014–2015
Common Reading Book Selection Committee member, 2014–2015
Women's and Gender Studies Committee, library liaison, 2002–2008
Academic Festival Planning Committee member, 2005-2007, 2008–2009
International Honors Program [International Core] Committee member, 2006–2008
Regents' Scholarship Selection Committee member, 2004–2007
Faculty Excellence Awards Selection Committee member, 2006, 2008
English Department Faculty Search Committee member, 2004, 2006

Departmental Service

Departmental Committees
Curriculum Review Committee
Chair, 2011–2012, 2014–2015, 2020–present
Member, 2002–2005, 2007–2016, 2019–present
Nicola Justice's Third-Year Review Committee member, 2019-2020
Linear Algebra Review Committee member, 2011–2014
Calculus Book Committee
Chair, 2011–2012
Member, 2003–2004
Tom Edgar's Third-Year Review Committee chair, 2011–2012
Mathematics Faculty Search Committee member, 2001–2002, 2008–2009, 2014–2015
Liaison to Computer Science Department, 2004–2009, 2012–2016
Library liaison, 2002–2003, 2004–2009
Webmistress,2002–2003, 2004–2009
Mathematics Colloquium co-coordinator, 2007–2009
Putnam Examination coach, 2003, 2006, 2008
Liaison to the Mathematical Association of America, 2001–2008
Mathematics Club Faculty Advisor, 2003–2007

Academic Advising

Major Student Advisor, 2004–present
Non-major Student Advisor, 2003–2009, 2011–2016, 2017–present

Professional Service

Editorial Board member

Math Horizons (mathematical journal), Mathematical Association of America, 2020–2024

Referee

Handbook of the Mathematics of the Arts and Sciences, 2019 (reference book)
Mathematics Magazine, Mathematical Association of America, 2010–2019 (mathematics journal)
Caribbean Curriculum, University of the West Indes, 2016 (education journal)
Configurations, Johns Hopkins University Press, 2015 (interdisciplinary journal)
Mosaic, University of Manitoba, 2015 (literary journal)
The American Mathematical Monthly, Mathematical Association of America, 2011–2012 (mathematics journal)

Communications in Algebra, Taylor & Francis, 2001 (mathematics journal)

Book reviewer

Houghton Mifflin, 2005
John Wiley & Sons, Inc., 2003

Activity Leader

Julia Robinson Mathematics Festival for 4th–12th graders, Shoreline, WA, March 18, 2012.

Judge

Mathematical Association of America MathFest Student Paper Presentations, 2011
AMS-MAA 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

Conferences, Workshops & Minicourses Attended

AMS-MAA Joint Mathematics Meetings, Denver, CO, January 15–19, 2020
PNW MAA Annual Meeting, University of Portland, Portland, OR, April 13, 2019
MAA MathFest, Denver, CO, August 1–5, 2018

Participated in the MAA minicourse *Mathematical Card Magic*, August 2 & 4

PNW MAA Annual Meeting, Seattle University, Seattle, WA, April 21, 2018
Math for Jazz Music (workshop), Jazz Night School, Seattle, WA, November 18, 2017
Council of Independent Colleges Workshop for Department & Division Chairs, Phoenix, AZ, June 6–8, 2017
Combinatorial Potlatch, Seattle University, November 19, 2016
AMS-MAA Joint Mathematics Meetings, Seattle, WA,January 6–9, 2016

Participated in the MAA minicourse *Humanistic Mathematics*, January 6 & 8
Participated in the AMS Department Chairs Workshop, January 5

Academic Advising workshop *The Role of the Chair in Academic Advising*, Pacific Lutheran U., August 18, 2015
PNW MAA Annual Meeting & NUMS Conference, University of Washington Tacoma, Tacoma, WA, April 10–11, 2015
AMS-MAA Joint Mathematics Meetings, Boston, MA, January 3–7, 2012
MAA MathFest, Lexington, KY, August 4–6, 2011
AMS-MAA Joint Mathematics Meetings, Washington, DC, January 4–9, 2009
National Popular Culture Assoc./American Culture Assoc. Conference, San Francisco, CA, March 19–23, 2008
The Bridges Conference, University of the Basque Country, July 24–27, 2007
AMS-MAA Joint Mathematics Meetings, New Orleans, LA, January 5–8, 2007
The Bridges Conference, University College London, August 4–8, 2006
PNW MAA Annual Meeting, University of Puget Sound, April 1–2, 2005
International Conference on Technology in Collegiate Mathematics, New Orleans, LA, October 28–31, 2004
AMS Special Session on Associative Rings and their Modules, University of Colorado Boulder, October 3–4, 2003
MAA online workshop *Abstract Algebra with GAP*, hosted by the Saint Louis University, July 14–18, 2003
Combinatorial Potlatch, University of Puget Sound, February 16, 2002
AMS-MAA Joint Mathematics Meetings, San Diego, CA, January 6–9, 2002
AMS-MAA Joint Mathematics Meetings, New Orleans, LA, January 10–13, 2001
Enhancing Diversity in Graduate Education Conference, Bryn Mawr College, June 16–17, 2000
AMS Special Session on Representation Theory, University of California Santa Barbara, March 11–12, 2000
AMS-MAA Joint Mathematics Meetings, Washington, DC, January 19–22, 2000

Community Service

Hospice volunteer, Providence Hospice of Seattle, 2019–present

Peer navigator, Facing Our Risk of Cancer Empowered, 2016–present

Online group owner and administrator, Giving Community of Southeast Seattle, 2015–present

Guest speaker, PLU's Introductory Microbiology (BIOL 201) class, Fall 2017

Panel member, Pacific Lutheran University Women's Center "Bold and Beautiful" Event, 2006