

**Curriculum Vitae**  
**Mark Brittenham**

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**Education**

B.S. in mathematics: January 1983, SUNY at Stony Brook (with highest honors)  
M.A. in mathematics: January 1986, Cornell University  
Ph.D. in mathematics: May, 1990, Cornell University  
    Dissertation: Essential Laminations in Seifert-fibered Spaces  
    Advisor: Allen Hatcher

**Professional Positions**

Institute for Advanced Study, Princeton, NJ  
    Member, 1990 - 1991  
University of Texas at Austin  
    Instructor, 1991 - 1994  
    Postdoctoral Fellow, 1994 - 1995  
New Mexico State University  
    Visiting Assistant Professor, 1995 - 1996  
Mathematical Sciences Research Institute  
    Member, August, 1996  
Vassar College  
    Visiting Assistant Professor, 1996 - 1997  
University of North Texas  
    Assistant Professor, 1997 - 2000  
University of Nebraska - Lincoln  
    Visiting Assistant Professor, 1999 - 2000  
    Assistant Professor, 2000 - 2002  
    Associate Professor, 2002 - 2015  
    Professor, 2015 - present  
City College of New York  
    Visiting research faculty, fall 2005  
Stevens Institute of Technology  
    Visiting research faculty, fall 2012  
University of Warwick  
    Visiting research faculty, spring 2013

## Research Interests

Geometric topology; low-dimensional topology; knot theory  
Foliations and laminations in 3-manifolds  
Combinatorial and geometric group theory

## Fellowships/Awards/Grants Funded

- SUNY at Stony Brook, Stony Brook Foundation Award, May 1983.
- Cornell University, Sage Graduate Fellowship, 1983-1984.
- Cornell University, Hutchinson Fellowship, Spr. 1985, Spr. 1987, Spr. 1989.
- Cornell, University, Alfred P. Sloan Doctoral Dissertation Fellowship, 1987-1988.
- National Science Foundation grant DMS-9203435, 'Essential laminations in 3-manifolds', June 1992 - July 1994.
- National Science Foundation grant DMS-9400651, 'Essential laminations in 3-manifolds', June 1994 - July 1997.
- National Science Foundation grant DMS-9704811, 'Essential laminations in 3-manifolds', June 1997- July 2000.
- University of North Texas, Junior Faculty Summer Research Fellowship, May - July, 1998.
- University of North Texas, Faculty Research Grant, 1998-1999.
- Clay Mathematics Institute, Mathematical Emissary (travel grant), November 2002
- Regional Undergraduate Mathematics Conferences grant, administered by the the MAA (under NSF DMS-0241090), for the 6th Regional Workshop, November 7-8, 2003.
- Regional Undergraduate Mathematics Conferences grant, administered by the the MAA (under NSF DMS-0241090), for the 7th Regional Workshop, November 5-6, 2004.
- National Science Foundation grant DMS-0306506, 'Surfaces in low-dimensional topology', June 2003 - May 2008.
- Nonacademic applied mathematics consultant (details available upon request), average 1.7 full time months/year, 2005-2006 and 2008-2015.

## Papers and Preprints

### Published:

1. *Essential laminations in Seifert-fibered spaces*, Topology **32** no.1 (1993), 61-85.
2. *Essential laminations in non-Haken 3-manifolds*, Topology Appl. **53** (1993) 317-324.
3. *Essential laminations and deformations of homotopy equivalences : From essential pullback to homeomorphism*, Topology Appl. **60** (1994) 249-265.
4. *Essential laminations and Haken normal form*, Pacific J. Math **168** (1995), 217-234.
5. *Essential laminations and Haken normal form : Laminations with no holonomy*, Comm. Anal. Geom. **3** (1995) 465-477.

6. *Essential laminations in I-bundles*, Trans. AMS **349** (1997) 1463-1485.
7. *Exceptional Seifert-fibered spaces and Dehn surgery on 2-bridge knots*, Topology **37** (1998) 665-672.
8. (with R. Naimi and R. Roberts) *Graph manifolds and taut foliations*, J. Diff. Geom. **45** (1997) 446-470.
9. *Essential laminations, exceptional Seifert-fibered spaces, and Dehn filling*, J. Knot Thy. Ram. **7** (1998) 425-432.
10. *Essential laminations in Seifert-fibered spaces : Boundary behavior*, Topology Appl. **95** (1999) 47-62.
11. *Persistently laminar tangles*, J. Knot Thy. Ram. **8** (1999) 415-428.
12. (with R. Roberts) *When incompressible tori meet essential laminations*, Pacific J. Math. **190** (1999) 21-40.
13. (with Y.-Q. Wu) *The classification of Dehn surgeries on 2-bridge knots*, Comm. Anal. Geom. **9** (2001) 97-113.
14. *Free genus one knots with large volume*, Pacific J. Math. **201** (2001) 61-82.
15. *Persistent laminations from Seifert surfaces*, J. Knot Thy. Ram. **10** (2001) 1155-1168.
16. *Tautly foliated manifolds without  $\mathbf{R}$ -covered foliations*, Proceedings of the Conference on Foliations: Geometry and Dynamics, Warsaw, 2000.
17. *Free Seifert surfaces and disk decompositions*, Math. Zeit. **240** (2002) 197-210.
18. (with C. Hayashi, M. Hirasawa, T. Kobayashi, and K. Shimokawa) *Essential laminations and branched surfaces in the exteriors of links*, Japanese Journal of Mathematics **31** (2005) 25-96.
19. (with Y. Rieck) *The Heegaard genus of bundles over  $S^1$* , Geometry and Topology Monographs **12** (2007) 17-35.
20. (with J. Jensen) *Families of knots for which Morton's inequality is strict*, Comm. Anal. Geom. **15** (2007) 971-983.
21. *Knots with unique minimal genus Seifert surface and depth of knots*, J. Knot Thy. Ram. **17** (2008) 315-335.
22. (with S. Margolis and J. Meakin) *Subgroups of free idempotent generated semigroups need not be free*, J. Algebra **321** (2009) 3026-3042.
23. (with S. Hermiller and R. Todd) *4-moves and the Dabkowski-Sahi invariant for knots*, J. Knot Theory Ramifications **22** (2013) 1350069.1-20.
24. (with S. Hermiller and D. Holt) *Algorithms and topology for Cayley graphs of groups*, J. Algebra **415** (2014) 112-136.
25. (with S. Hermiller) *A uniform model for almost convexity and rewriting systems* J. Group Theory **18** (2015) 805-828.
26. (with S. Hermiller) *Tame filling invariants for groups* Internat. J. Algebra Comput. **25** (2015) 813-854.

Accepted:

27. (with S. Hermiller and A. Johnson) *Homology and closure properties of autostackable groups*, arXiv:1506.00071, preprint, 20pp. to appear in J. Algebra.

In Preparation:

28. (with S. Hermiller and R. Todd)  $(t_3, \bar{t}_4)$ -moves and knot group quotients, in preparation.  
29. *Knots with more than one minimal genus Seifert surface and depth*, in preparation.  
30. *Searching for unknotting numbers*, in preparation.  
31. *Solving Sudoku: beating the smallest possible start*, in preparation.

Unpublished:

32.  $\pi_1$ -injective, proper maps of open surfaces, preprint (1989).  
33. *Essential laminations and Haken normal form : Regular cell decompositions*, preprint (1992).  
34. *Essential laminations and deformations of homotopy equivalences : The structure of pullbacks*, preprint (1994).  
35. *Bounding canonical genus bounds volume*, preprint (1998).  
36. (with J. Jensen) *Canonical genus and the Whitehead doubles of families of alternating knots*, math.GT/0608765, preprint (2007), 16 pp.  
37. (With S. Margolis and J. Meakin) *Subgroups of free idempotent generated semigroups: full linear monoid*, arXiv:1009.5683, preprint (2010), 17 pp.

**Courses Taught:**

University of Texas at Austin:

<i>Semester</i>	<i>Course number</i>	<i>Course title (abbr.)</i>	<i># students</i>
Fall 1991	Math 408C	Calculus I	122
	Math 367K	Topology	15
Spring 1992	Math 343K	Intro. to Alg. Structures	29
	Math 365C	Real Analysis 1	20
Fall 1992	Math 408C	Calculus I	129
	Math 367K	Topology	14
Spring 1993	Math 365C	Real Analysis 1	20
	Math 392C	Topics in topology	8
Fall 1993	Math 408C	Calculus I	125
	Math 367K	Topology	10
Spring 1994	Math 365C	Real Analysis 1	26
	Math M340L	Matrices and Matrix Calc.	123

New Mexico State University:

<i>Semester</i>	<i>Course number</i>	<i>Course title (abbr.)</i>	<i># students</i>
Fall 1995	Math 291	Calculus III	37
	Math 392	Differential Equations	15
Spring 1996	Math 192	Calculus II	34
	Math 332	Intro. to Modern Analysis	12

Vassar College:

<i>Semester</i>	<i>Course number</i>	<i>Course title (abbr.)</i>	<i># students</i>
Fall 1996	Math 145	Calc. and Discrete Math.	38 + 50 (2 sect.)
	Math 225	Multivariable Calculus	23
Spring 1997	Math 116	Topics in Calculus	17
	Math 117	Excursions in Math.	7

University of North Texas:

<i>Semester</i>	<i>Course number</i>	<i>Course title (abbr.)</i>	<i># students</i>
Fall 1997	Math 1650	Precalculus	29
	Math 1720	Calculus II	39
Spring 1998	Math 1710	Calculus I	37
	Math 4500	Introduction to Topology	23
Fall 1998	Math 1650	Precalculus	86
	Math 1710	Calculus I	49

University of Nebraska-Lincoln:

<i>Semester</i>	<i>Course number</i>	<i>Course title (abbr.)</i>	<i># students</i>
Spring 1999	Math 203	Contemporary Math.	33
	Math 314 / 814	Matrix Theory	29 / 1
Fall 1999	Math 208	Calculus III	37
	Math 971	Algebraic Topology I	5
Spring 2000	Math 221	Differential Eqns.	25
	Math 314 / 814	Matrix Theory	37 / 2
Fall 2000	Math 208H	Calculus III	38
Spring 2001	Math 203	Contemporary Math.	31
	Math 970	Topology	12
Fall 2001	Math 310 / 310H	Intro. to Modern Algebra	27 / 10
	Math 971	Algebraic Topology I	6
Spring 2002	Math 203	Contemporary Math.	30
	Math 970	Topology	5
Fall 2002	Math 445	Intro. Number Thy.	22
Spring 2003	Math 221	Differential Eqns.	29
	Math 978	Survey of Knot Theory	12
Fall 2003	Math 107H	Calculus II	28
	Math 970	Topology	14
Spring 2004	Math 208H	Calculus III	27
	Math 221	Differential Equations	28

Fall 2004	Math 445	Intro. Number Thy.	23
Spring 2005	Math 971	Algebraic Topology	30
Fall 2006	Math 856	Intro. Smooth Manifolds	13
Spring 2007	Math 872	Algebraic Topology	10
Fall 2007	Math 106	Calculus I	135
	Math 203	Contemporary Math.	30
Spring 2008	Math 314	Matrix Theory	32
	Math 990	Topics in Topology	6
Fall 2008	Math 107H	Calculus II	26
	Math 445	Intro. Number Thy.	20
Spring 2009	Math 314	Matrix Theory	18
	Math 314	Matrix Theory	14
Fall 2009	Math 221	Differential Eqns.	35
	Math 856	Intro. Smooth Manifolds	6
Spring 2010	Math 107	Calculus II	88
	Math 314/814	Matrix Theory	29 / 4
Fall 2010	Math 107H	Calculus II	32
Spring 2011	Math 423/823	Intro. Complex Variables	25 / 9
	Math 896	Landscape Seminar	18
	Math 990	Topics in Topology	13
Fall 2011	Math 189H	Freshman Honors Seminar	13
	Math 856	Intro. Smooth Manifolds	20
Spring 2012	Math 208H	Calculus III Honors	22
	Math 325	Elementary Analysis	21
Fall 2013	Math 107H	Calculus II	27
	Math 314	Matrix Theory	30
Spring 2014	Math 208H	Calculus III Honors	20
	Math 990	Topics in Topology	16
Fall 2014	Math 314	Matrix Theory	34
	Math 871	Topology I	13
Spring 2015	Math 314	Matrix Theory	38
	Math 872	Topology II	12
Fall 2015	Math 107H	Calculus II	27
	Math 856	Intro. Smooth Manifolds	11

**Independent study/reading courses taught:**

*University of Texas:* 3-manifolds, summer 1993

*University of Nebraska:* homology theory, summer 2001; homology theory, summer 2003; differential geometry, fall 2003; topology, summer 2004; number theory, spring 2005; analytic number theory, spring 2006; differential topology, fall 2007; knot theory, summer 2008; number theory, fall 2009; knot theory, summer 2010; homology theory, fall 2011; knot theory, spring 2013; algebraic topology, fall 2013; knot theory, fall 2014; combinatorial group theory, fall 2014; algebraic topology, spring 2015.

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### **Lecture notes:**

Detailed lecture notes, available on the web, for *Foliations and the topology of 3-manifolds* (spring 1993), *Number Theory* (fall 2004), *Algebraic Topology* (spring 2005, spring 2007), *Differential Topology* (fall 2006), and *Joy of Numbers* (fall 2011).

### **Undergraduate and graduate advising:**

*Senior Honors Thesis direction:*

Mary Vacha, 2004-2005 (received highest distinction)  
Gabriel Smith, 2006-2007  
Charles Larrieu and Jordan Weibe, 2012.

*UCARE Program:*

Gabriel Smith, 2005-2007  
Michael Niemeier, 2013-2014.

*Nebraska Math Scholars Program*, mentor: Theresa Gruber.

*Current Ph.D. supervisory committees:* Mohammad Inam.

*Current Ph.D. students:*

Maranda Franke  
Meggan Hass  
Nicholas Owad

*Past Ph.D. students (and date of degree):*

Scott Dyer (2015)  
Anne Kerian (2015)  
Anisah Nu'man (2015)  
Nathan Corwin (2013)  
Melanie DeVries (2013)  
Ashley Weatherwax Johnson (2013)

### **Teaching Award:**

UNL College of Arts and Sciences Award for Distinguished Teaching, 2014.

### **Referee and review activities:**

- Reviewer: National Science Foundation
- Text Reviewer/Referee: Addison Wesley Longman Publishing, Brooks/Cole Publishing, John Wiley & Sons Publishing, McGraw-Hill Publishing, Pearson Publishing, Prentice Hall Publishing, Springer-Verlag Publishing.
- Referee: *Advances in Mathematics*, *Algebraic and Geometric Topology*, *American Mathematical Monthly*, *Annales de l'Institut Fourier*, *Bulletin of the London Mathematical Society*, *Commentarii Mathematici Helvetici*, *Communications in Analysis and Geometry*, *Forum Mathematicum*, *Expositiones Mathematicae*, *Geometriae Dedicata*, *Geometry and Topology*, *International Journal of Algebra and Computation*, *Inventiones Mathematicae*, *Journal of Algebra*, *Journal of the American Mathematical Society*, *Journal of Pure and Applied Algebra*, *Journal of Knot Theory and its Ramifications*, *Mathematische Annalen*, *Pacific Journal of Mathematics*, *Proceedings of the*

American Mathematical Society, Rocky Mountain Journal of Mathematics, Topology, Topology and its Applications, Transactions of the American Mathematical Society.

- Referee: Proceedings of the 1993 Georgia Topology Conference; Proceedings of the Kirbyfest, MSRI, June, 1998; Proceedings of the Ficofest, December, 2002
- Reviewer: Mathematical Reviews

### **Conference Organization:**

- Co-organizer (with C. Delman and R. Roberts), special session on Low-dimensional Topology, AMS meeting, Urbana, IL, March 18-21, 1999.
- Co-organizer (with F. Gonzalez-Acuña and L. Sanchez-Valdez), special session on Low-dimensional Topology, AMS-SMM meeting, Denton, TX, May 19-22, 1999.
- Co-organizer (with R. Todd), special session on Invariants in Knot Theory and Low-dimensional Topology, AMS meeting, Lincoln, NE, October 14-16, 2011.

### **Committee Service:**

University of Texas at Austin:

- Co-organizer, Introduction to Research lecture series, 1993 - 1994

University of Nebraska-Lincoln:

- Co-organizer, Third Annual Regional Workshop in the Mathematical Sciences, October 27-28, 2000
- Head of organizing committee, Fourth Annual Regional Workshop in the Mathematical Sciences, November 2-3, 2001
- Head of organizing committee, Fifth Annual Regional Workshop in the Mathematical Sciences, October 25-26, 2002
- Head of organizing committee, Sixth Annual Regional Workshop in the Mathematical Sciences, November 7-8, 2003
- Head of organizing committee, Seventh Annual Regional Workshop in the Mathematical Sciences, November 5-6, 2004
- Head of organizing committee, Eighth Annual Regional Workshop in the Mathematical Sciences, October 27-28, 2006
- Member, postdoctoral search committee, 2002-2003
- Member, algebra/discrete mathematics search committee, 2003-2004
- Member, department executive committee, 2003-2005
- Avery virtual tour coordinator, Avery re-dedication ceremony, September 30, 2004
- Co-administrator, NSF Nebraska MCTP grant, 2004-2005
- Member, coding theory/combinatorics search committee, 2006-2007
- Member, technical advisory committee, 2006-2007
- Member, postdoctoral search committee, 2008-2009
- Member, graduate advisory committee, 2008-2011



- Chair, postdoctoral search committee, 2009-2010
- Member, postdoctoral search committee, 2011-2012
- Member, department executive committee, 2011-2012
- Chair, postdoctoral search committee, 2013-2014
- Member, scientific computing advisory committee, 2013-2014, 2015-present
- Library liaison, Department of Mathematics, 2000 - 2005, 2007-2012, 2013-present
- Member, postdoctoral search committee, 2014-2015
- Chair, computing systems advisory committee, 2014-2015
- Member, First Year Math Task Force, 2015-present
- Member, Masters of Arts for Teachers committee, 2015-present

**Professional Society Memberships:**

American Mathematical Society

**Invited Talks**

*Conferences*

1. Upstate New York Topology Seminar, Syracuse, NY, November 10-12, 1989  
Title: Seifert-fibered spaces which contain no essential laminations.
2. Georgia Topology Conference, Athens, GA, August 1-5, 1990  
Title: Essential laminations in Seifert-fibered spaces.
3. Low-dimensional Topology Conference, Knoxville, TN, May 18-23, 1992  
Title: Controlling essential laminations.
4. Texas Geometry/Topology Conference, Houston, TX, April 16-18, 1993  
Title: Essential laminations in non-Haken 3-manifolds.
5. Joint AMS - SMM meeting, Merida, Yucatan, Mexico, December 1-4, 1993  
Special session on geometric topology in low dimensions  
Title: Essential laminations and cylindrical components.
6. New Mexico Topology/Geometry Seminar, Albuquerque, NM, October 27-28, 1995  
Title: Knots, Property P, and essential laminations.
7. Cascade Topology Seminar, Tacoma, WA, November 4-5, 1995  
Title: Persistent laminations from Seifert surfaces, or How to build your very own knot with (strong) Property P.
8. Joint AMS - SMM meeting, Guanajuato, Mexico, Nov. 29 - Dec. 2, 1995  
Special session on low dimensional topology  
Title: (Exceptional) Seifert-fibered spaces and Dehn surgery on hyperbolic knots.
9. AMS Meeting, University of Iowa, Iowa City, IA, March 22-23, 1996  
Special session on Topology of 3-manifolds  
Title: Graph manifolds and taut foliations.
10. Colloquium of Quebec Graduate Students, Univ. de Montreal, March 22-23, 1997  
Plenary lecture

- Title: Foliations from the topological point of view.
11. Catskill-Taconic Topology Day, Vassar College, May 10, 1997  
Title: A laminator's 'most-wanted' list of knots.
  12. Georgia Topology Conference, Athens, GA, July 30 - August 3, 1997  
Title: Constructing persistent laminations for fun and profit.
  13. Nara Women's University, Nara, Japan, January 5-8, 1998  
Meeting on laminations in 3-manifolds  
Title: When incompressible tori meet essential laminations.
  14. AMS meeting, Kansas State University, March 27-28, 1998  
Special session on Pictorial Methods in Low Dimensional Topology  
Title: Canonical genus, free genus, and volume.
  15. AMS meeting, Univ. of California at Davis, April 25-26, 1998  
Special session on Recent Results on the Topology of Three-Manifolds  
Title: Canonical genus, free genus, and volume.
  16. AMS meeting, Wake Forest Univ., Winston-Salem, NC, October 9-10, 1998  
Special session on Geometry and Topology in dimension 3  
Title: Free Seifert surfaces for knots.
  17. AMS meeting, Univ. of Texas at Austin, October 8-10, 1999  
Special session on Dehn surgery and Kleinian groups.  
Title: Free Seifert surfaces and disk decompositions.
  18. AMS meeting, Univ. of California at Santa Barbara, March 11-12, 2000  
Special session on Geometric Methods in 3-manifolds  
Title: Seifert surfaces and sutured handlebodies
  19. Conference on Foliations: Geometry and Dynamics, Banach Center, Warsaw, Poland,  
May 29-June 9, 2000  
Title: Sutured handlebodies and depth of knots
  20. Spring Topology and Dynamical Systems Conference, Morelia, MX, March 15-17, 2001  
Special session on Geometric Topology  
Title: Seifert surfaces that aren't depth one
  21. Foliations and Geometry 2001, Rio de Janeiro, Brazil, August 2-11, 2001  
Title: Taut foliations hate toroidal manifolds
  22. Geometric Topology, Xi'an, China, August 12-16, 2002  
Title: Knots with unique minimal genus Seifert surface and depth of knots
  23. Joint ESI-EDGE Workshop on Geometry and Physics, Vienna, Austria, November  
11-22, 2002  
Title: Knots, foliations, and depth
  24. 28th Annual Spring Lecture Series, University of Arkansas, April 10-12, 2003  
Title: Knots with unique minimal genus Seifert surface
  25. Sixth Regional Workshop in the Mathematical Sciences, University of Nebraska, Novem-  
ber 7-8, 2003

- Title: How Knot Theorists Decide that their Shoes are Untied
26. AMS meeting, Florida State University, Tallahassee, FL, March 12-13, 2004  
Special session on Results in 3-Manifolds and Related Topics  
Title: Seifert surfaces with different depths
  27. Spring Topology and Dynamics Conference, University of Alabama at Birmingham, March 25-27, 2004  
Title: Seifert surfaces with different depths
  28. Joint AMS-SMM meeting, Houston, TX, May 13-15, 2004  
Special Session on Low Dimensional Topology  
Title: Depths of Seifert surfaces
  29. First AR-OK workshop in Topology and Geometry, Fayetteville, AR, May 18-20, 2005  
Title: In search of a better unknot recognition algorithm
  30. Spring Topology and Dynamics Conference, UNAM, Mexico City, MX, March 22-24, 2012  
Title: Knots, 4-moves, and invariants
  31. AMS Central Section Meeting, St. Louis, MO, October 18-20, 2013  
Special session on Geometric Topology in Low Dimensions  
Title: Seifert surfaces and sutured manifolds

Seminars/Colloquia

32. Saint Louis University, St. Louis, MO, colloquium, February 5, 1990  
Title: Essential laminations in Seifert-fibered spaces.
33. Rutgers University, Newark, NJ, topology seminar, February 28, 1991  
Title: Haken normal form for essential laminations.
34. New Mexico State University, Las Cruces, NM, colloquium, December 1, 1994  
Title: Exploring 2-bridge knots.
- 35,36. University of Texas at El Paso, El Paso, TX, February 16, 1996  
Undergraduate Mathematics Club, Departmental Colloquium  
Title: Knots and surfaces.  
Title: The care and feeding of essential laminations in 3-manifolds.
37. Cornell University, Ithaca, NY, topology seminar, November 26, 1996  
Title: Essential laminations are everywhere.
38. Univ. de Quebec á Montreal, topology seminar, March 21, 1997  
Title: Essential laminations as hyperbolic 3-manifold detectors.
39. New Mexico State University, Friday seminar, October 3, 1997  
Title: Playing checkers with knots.
40. University of Texas at Austin, topology seminar, November 24, 1997  
Title: When incompressible tori meet essential laminations.
41. Rice University, Houston, TX, colloquium, November 5, 1998  
Title: Knots, Seifert surfaces, and volume.
42. Texas A & M Commerce, Commerce, TX

- student/faculty colloquium, November 17, 1998  
 Title: Knots, Seifert surfaces, and volume.
43. University of Nebraska, colloquium, October 14, 1999  
 Title: Tying surfaces up in knots.
44. University of Iowa, topology seminar, November 18, 1999  
 Title: Seifert surfaces, Seifert's algorithm, and disk decompositions.
45. Texas Christian University, Frank W. Stones Lectureship Series, November 23, 1999  
 Title: The best surface(s) for studying a knot.
46. SUNY at Buffalo, colloquium, December 10, 1999  
 Title: Tying surfaces up in knots
47. University of South Alabama, colloquium, February 18, 2000  
 Title: Tying surfaces up in knots
48. University of Michigan, topology seminar, March 14, 2000  
 Title: The search for a hyperbolic, non-laminar, 3-manifold
49. University of Nebraska, colloquium, December 4, 2001  
 Title: The strange but true history of the Poincaré Conjecture
- 50,51. Washington University, colloquium and topology seminar, April 11-12, 2002  
 Title: Hyperbolic knots with depth greater than one  
 Title: The strange but true history of the Poincaré Conjecture
- 52,53. University of Arkansas, colloquium and topology seminar, September 26-27, 2002  
 Title: Knots, Seifert surfaces, and depth  
 Title: The strange but true history of the Poincaré Conjecture
- 54,55. Kansas State University, colloquium and topology seminar, October 15 , 2002  
 Title: Knots, Seifert surfaces, and depth  
 Title: A cartoon history of the Poincaré Conjecture
56. Center for Communications Research, San Diego, CA, February 28, 2003  
 Title: Knots with unique minimal genus Seifert surface
57. Vassar College, colloquium, October 11, 2005  
 Title: Stalking the Unknot
58. Centre de Recerca Matemàtica, Barcelona, Spain, group theory seminar, May 4, 2006  
 Title: Rewriting systems for knot groups
59. New York Applied Algebra Colloquium, CUNY Graduate Center, Sept. 28, 2012  
 Title: Unknotting moves and quotients of knot groups
60. Center for Communications Research, La Jolla, CA, Nov. 15, 2012  
 Title: Wanted: an infinite group to solve a knot theory problem  
 (or proof that none exists)
61. Newcastle University, Newcastle upon Tyne, England, algebra-geometry seminar,  
 April 18, 2013  
 Title: Unknotting moves and group quotients
62. University of Warwick, Coventry, England, geometry and topology seminar,  
 May 2, 2013

Title: Unknotting moves and group quotients

63. Yale University, geometry and topology seminar, April 22, 2014

Title: Topology of Seifert surfaces.

64. University of Zaragoza, Spain, algebra seminar, June 8, 2015

Title: Knot moves and group quotients

Outreach:

65. “It’s a Math Thing”, University of Nebraska - Lincoln, July 21-22, 2000

Title: Building rectangles out of squares of different sizes (2 talks)

66. Power Math 2001, University of Nebraska - Lincoln, July 15-21, 2001

Title: Coloring knots

67. Power Math 2002, University of Nebraska - Lincoln, July 14-20, 2002

Title: Knots and polynomials

68. All Girls All Math, University of Nebraska - Lincoln, July 18-24, 2004

Mini-course on Knots

69, 70. Westside High School, Omaha, NE, October 6, 2004

Title: How do you decide if your shoes are untied?

Title: How do you decide if your shoes are tied?

71. All Girls All Math, University of Nebraska - Lincoln, July 22-26, 2007

Title: Knots and modular arithmetic

72. Creighton University Pi Day, Omaha, NE, March 14, 2011

Title: The many ways to unknot a knot

73. Brooklyn College, Math Club, October 4, 2012

Title: The many ways to untie a knot

74. MAA Sectional Meeting, Nebraska Wesleyan University, March 14-15, 2014

Title: Sudoku solving with polynomial equations

Additional talks at home institution(s)

Cornell University: topology seminar, 2 talks; graduate student seminar, 2 talks

Institute for Advanced Study: topology seminar, 2 talks

University of Texas: topology seminar, 9 talks

New Mexico State University: topology seminar, 4 talks

University of North Texas: colloquium, 2 talks

University of Nebraska: groups/semigroups/topology seminar, 48 talks; operator algebras seminar, 6 talks; functional analysis seminar, 2 talks; department colloquium, 4 talks; Women’s Undergraduate Math Network, 1 talk; Pi Mu Epsilon meeting, 1 talk; landscape seminar, 7 talks; Annual Regional Workshop, 3 (non-plenary) talks; UNL recruiting weekends, 3 talks.