Zach Teitler

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Degrees

Ph.D. (Mathematics), University of Michigan, 2005
Dissertation: Multiplier ideals of line arrangements
Advisor: Robert Lazarsfeld

B.S. (Creative Studies–Mathematics), University of California–Santa Barbara, 2000

Employment History

Associate Professor of Mathematics, Boise State University, 2014–Present

Assistant Professor of Mathematics, Boise State University, 2010–2014

Visiting Assistant Professor of Mathematics, Texas A&M University, 2007–2010

Assistant Professor of Mathematics, Southeastern Louisiana University, 2005–2008

Publications

31. Garritt Johns, Zach Teitler, *An improved upper bound for the Waring rank of the determinant*, J. Comm. Alg., to appear

30. Mats Boij, Zach Teitler, *A bound for the Waring rank of the determinant via syzygies*, Linear Alg. Appl., **587** (2020), 195–214

29. Brian Harbourne, Juan Migliore, Uwe Nagel, Zach Teitler, *Unexpected hypersurfaces and where to find them*, Michigan Math. J., to appear

28. Jarosław Buczyński, Kangjin Han, Massimiliano Mella, Zach Teitler, *On the locus of points of high rank*, European Journal of Mathematics, 2018

27. Theodosios Douvropoulos, Joachim Jelisiejew, Bernt Ivar Utstøl Nødland, Zach Teitler, *The Hilbert scheme of* 11 *points in* $\mathbb{A}^3$ *is irreducible*, in *Combinatorial Algebraic Geometry*, Gregory G. Smith, Bernd Sturmfels, eds., 2017, Springer

26. Zach Teitler, *Sufficient conditions for Strassen's additivity conjecture*, Illinois J. Math., 2015 (published in 2016)

25. Jarosław Buczyński and Zach Teitler, *Some examples of forms of high rank*, Collect. Math., 2016

24. Nathan Ilten and Zach Teitler, *Product ranks of the* 3×3 *determinant and permanent*, Canad. Math. Bull., 2016

23. Harm Derksen and Zach Teitler, *Lower bound for ranks of invariant forms*, JPAA, 2015

22. Kent M. Neuerburg and Zach Teitler, *Decompositions of ideals of minors meeting a submatrix*, Comm. Alg., 2016

21. Nickolas Hein, Christopher J. Hillar, Abraham Martín del Campo, Frank Sottile, Zach Teitler, *The monotone secant conjecture in the real Schubert calculus* Exp. Math., 2015. (Extended version of abstract presented at MEGA 2011.)

20. Grigoriy Blekherman, Zach Teitler, *On maximum, typical, and generic ranks*, Math. Ann., 2015

19. Erik Holmes*, Paul Plummer*, Jeremy Siegert*, Zach Teitler, *Maximum Waring ranks of monomials and sums of coprime monomials*, Comm. Alg., 2016
* undergraduate co-author

18. Weronika Buczyńska, Jarosław Buczyński, Johannes Kleppe, and Zach Teitler, *Apolarity and direct sum decomposability of polynomials*, Michigan Math. J., 2015

17. Zach Teitler, *Software for multiplier ideals*, JSAG, 2015

16. Zach Teitler and Alexander Woo, *Power sum decompositions of defining equations of reflection arrangements*, J. Alg. Comb., 2015

15. Zach Teitler and Douglas A. Torrance, *Castelnuovo–Mumford regularity and arithmetic Cohen–Macaulayness of complete bipartite subspace arrangements*, JPAA, 2015

14. Weronika Buczyńska, Jarosław Buczyński, and Zach Teitler, *Waring decompositions of monomials*, J. Algebra, 2013

13. Zach Teitler, *Topological criteria for schlichtness*, Proc. Edinb. Math. Soc. (2), 2013

12. Javier Elizondo, Paulo Lima-Filho, Frank Sottile, and Zach Teitler, *Arithmetic toric varieties*, Math. Nach., 2014

11. Luis García-Puente, Nickolas Hein, Christopher J. Hillar, Abraham Martín del Campo, James Ruffo, Frank Sottile, and Zach Teitler, *The Secant Conjecture in the real Schubert calculus*, Experimental Math., 2012

10. Thomas Bauer, Cristiano Bocci, Susan Cooper, Sandra Di Rocco, Marcin Dumnicki, Brian Harbourne, Kelly Jabbusch, Andreas Leopold Knutsen, Alex Küronya, Rick Miranda, Joaquim Roé, Hal Schenck, Tomasz Szemberg, Zach Teitler, *Recent developments and open problems in linear series*, in *Contributions to Algebraic Geometry*, IMPANGA Lecture Notes, August 2012

9. Susan Cooper, Brian Harbourne, and Zach Teitler, *Combinatorial bounds on Hilbert functions of fat points in projective space*, J. Pure Appl. Algebra, 2011

8. Nero Budur, Mircea Mustaţă, and Zach Teitler, *The Monodromy Conjecture for hyperplane arrangements*, Geom. Dedicata, 2011

7. Christopher Hillar, Luis García-Puente, Abraham Martín del Campo, James Ruffo, Zach Teitler, Stephen L. Johnson, and Frank Sottile, *Experimentation at the Frontiers of Reality in Schubert Calculus*, Contemp. Math., 2010

6. J.M. Landsberg and Zach Teitler, *On the ranks and border ranks of tensors and symmetric tensors*, Found. Comput. Math., 2010

5. Zach Teitler, *Bounding symbolic powers via asymptotic multiplier ideals*, Ann. Univ. Pedagog. Crac. Stud. Math., 2009

4. Ulrich Derenthal, Michael Joyce, and Zach Teitler, *The nef cone volume of generalized Del Pezzo surfaces*, Algebra & Number Theory, 2008

3. Zach Teitler, *A note on Mustaţă's computation of multiplier ideals of hyperplane arrangements*, Proc. Amer. Math. Soc., 2008

2. Zachariah C. Teitler, *On the intersection of the curves through a set of points in* $\mathbb{P}^2$, J. Pure Appl. Algebra, 2007

1. Zachariah C. Teitler, *Multiplier ideals of general line arrangements in* $\mathbb{C}^3$, Comm. Alg., 2007

Unpublished

1. Zach Teitler, *Geometric lower bounds for generalized ranks* (arXiv:1406.5145 [math.AG])

Software

3. MultiplierIdeals: a Macaulay2 package for computing multiplier ideals of special ideals including monomial ideals, monomial curves, and generic determinantal ideals.

2. ApolarIdeal: a Macaulay2 package for computing apolar ideals

1. CombinatorialIteration: a Macaulay2 package providing iterators for several common combinatorial structures

Grants and Awards

11. Simons Foundation Collaboration Grants for Mathematicians (award #354574, 2015–2020, $35,000)

10. COAS Travel Grant, for travel to CMS Winter Meeting, Hamilton, Ontario, December 2014 ($500)

9. COAS Travel Grant, for travel to Institute of Mathematics of the Polish Academy of Sciences, Warsaw, January 2013 ($500)

8. Boise State University College Of Arts and Sciences (COAS) Travel Grant, for travel to AMS Sectional Meeting at University of Iowa, March 2011 ($300)

7. (with W. Bangerth, R. Carroll, and F. Sottile) NSF SCREMS Grant "Cluster Computing for the Mathematical Sciences at Texas A&M University" (DMS-0922866, 2009–2010, $59,480)

6. (with Kent Neuerburg) Louisiana University Board of Regents Research Competitiveness Subprogram (RCS) grant, "Geometry and Algebra of Ideals Generated by Determinants" (LEQSF(2007-10)-RD-A-28, 2007–2010, $59,892)

5. Southeastern Louisiana University Center for Faculty Excellence, Travel Grant for travel to University of Nebraska–Lincoln, October, 2006

4. Southeastern Louisiana University Center for Faculty Excellence, Center's Innovative Teaching Initiative (CITI) grant for travel to Project NExT, 2006–7

3. Travel Grant for Emerging Faculty, Louisiana Board of Regents/NSF, March–April 2005

2. Regents-VIGRE Graduate Fellow, University of Michigan, September 2000–April 2005

1. Raymond L. Wilder Award, University of California–Santa Barbara, Department of Mathematics, June 2000

Invited Conference Presentations

26. *A bound for the Waring rank of the determinant via syzygies*, SIAM Pacific Northwest Section Biennial Meeting, Seattle University (Thematic Session on Algebra, Geometry, and Applications), October 18–20, 2019

25. *A bound for the Waring rank of the determinant via syzygies*, SIAM Conference on Applied Algebraic Geometry, Bern, Switzerland (Session: The algebra and geometry of tensors 2: structured tensors), July 9–13, 2019

24. *A bound for the Waring rank of the determinant via syzygies*, AMS 2018 Fall Central Sectional Meeting, Ann Arbor, MI (Special Session on Commutative Algebra and Complexity), October 20–21, 2018

23. *Waring ranks*, three plenary lectures and problem session, for the *Varieties and Group Actions* workshop of the *Varieties: Arithmetic and Transformations* semester of the IMPAN (Institute of Mathematics of the Polish National Academy of Sciences), Warsaw, Poland, September 23–29, 2018

22. *Geometry of high rank loci*, Spring 2017 AMS Western Sectional, Pullman, WA (Special Session on Combinatorial and Computational Commutative Algebra and Algebraic Geometry), April 22–23, 2017

21. *Direct sum decomposability of forms*, Spring 2017 AMS Western Sectional, Pullman, WA (Special Session on Commutative Algebra), April 22–23, 2017

20. *Lower bound for ranks of invariant forms*, CMS Winter Meeting, Hamilton, Ontario, December 5–8, 2014

19. *On maximum, typical, and generic ranks*, Spring 2014 AMS Central Sectional, Lubbock, TX, April 11–13, 2014

18. *Direct sum decomposability of polynomials*, Interactions between Commutative Algebra and Algebraic Geometry II, Tulane, September 28–29, 2013

17. *Software for computing multiplier ideals*, SIAM Conference on Applied Algebraic Geometry, Colorado State University, August 1–4, 2013

16. *Direct sum decomposability of polynomials*, SIAM Conference on Applied Algebraic Geometry, Colorado State University, August 1–4, 2013

15. *Experimentation at the Frontiers of Reality in Schubert Calculus*, AAAS Pacific Division 2012 Meeting, Boise, ID, June 27, 2012

14. *Software for computing multiplier ideals*, Michigan Computational Algebraic Geometry 2012, Oakland University, May 13, 2012

13. *Ranks and Generalized Ranks*, 2011 SIAM Conference on Applied Algebraic Geometry, NCSU, October 7, 2011

12. *Software for the computation of multiplier ideals*, MEGA (Effective Methods in Algebraic Geometry), Stockholm, Sweden, June 1, 2011

11. *Ranks and generalized ranks*, Toric geometry and applications, Leuven, Belgium, June 6, 2011

10. *Ranks of polynomials*, AMS Sectional, Iowa City, March 19, 2011

9. *Combinatorial bounds for Hilbert functions and graded Betti numbers of fat point schemes*, Oberwolfach workshop on Linear Series on Algebraic Varieties, October 5, 2010

8. *Experimentation at the Frontiers of Reality in Schubert Calculus*, Joint Mathematics Meetings, January 16, 2010

7. *Experimentation at the Frontiers of Reality in Schubert Calculus*, AMS Central Section Meeting, October 18, 2009

6. (Poster) *Hilbert functions of fat point schemes*, Pan-American Advanced Study Institute (PASI) in Commutative Algebra and its Connections to Geometry, Olinda, Brazil, August 2009

5. *Experimentation at the Frontiers of Reality in Schubert Calculus*, AMS Southeastern Section Meeting, April 5, 2009

4. *Bounding Hilbert functions of fat point schemes*, AMS Fall Western Section Meeting, October 4, 2008

3. *Multiplier ideals of hyperplane arrangements*, AMS Southeastern Sectional Meeting, March 28, 2008

2. *Multiplier ideals of hyperplane arrangements*, AMS Southeastern Sectional Meeting, March 3, 2007

1. *On the intersection of the curves through a set of points in* $\mathbb{P}^2$, Joint Mathematics Meetings, January 8, 2007

Invited Seminar and Colloquium Presentations

41. *Waring ranks of homogeneous forms*, University of Washington, Algebra and Algebraic Geometry Seminar, November 21, 2017

40. *Waring ranks of homogeneous forms*, York University, Combinatorics Seminar, November 7, 2016

39. *Waring ranks of homogeneous forms*, Fields Institute, University of Toronto, October 18, 2016

38. *Bounds for Waring rank*, McMaster University, Algebra Seminar, September 19, 2016

37. *Bounds for Waring rank*, University of Minnesota, Commutative Algebra Seminar, February 18, 2016

36. *Bounds for Waring rank*, Central Michigan University, Colloquium, November 16, 2015

35. *Bounds for Waring rank*, University of Utah, Commutative Algebra Seminar, October 6, 2015

34. *Geometric lower and upper bounds for Waring rank*, University of Arkansas, Colloquium, January 6, 2015

33. *Ranks of polynomials*, University of Idaho, Colloquium, March 27, 2014

32. *Apolarity, Waring ranks, and direct sum decomposability of polynomials*, Queen's University, Algebraic Geometry Seminar, January 13, 2014

31. *A geometric lower bound for rank*, IMPANGA, Warsaw, Poland, January 11, 2013

30. *Direct sum decomposability and apolarity*, MIMUW Algebraic Geometry Seminar, Warsaw, Poland, January 10, 2013

29. *Ranks of polynomials*, Cleveland State and Kent State, April 20–23, 2011

28. *Ranks of polynomials* and *Experimentation at the Frontiers of Reality in Schubert Calculus*, Idaho State University, March 31–April 1, 2011

27. *Ranks of polynomials*, University of Utah, Commutative Algebra Seminar, May 30, 2011

26. *Experimentation at the Frontiers of Reality in Schubert Calculus*, University of Idaho, Colloquium, Feb. 3, 2011

25. *Ranks of polynomials*, University of Kentucky, Algebra Seminar, February 8, 2010

24. *Ranks of polynomials*, Rice, Algebra Seminar, February 2, 2010

23. *Counting curves through points with multiplicities*, Texas State University San Marcos, December 4, 2009

22. *Ranks of polynomials*, Pomona College, November 24, 2009

21. *Ranks of polynomials*, UC Santa Barbara, November 23, 2009

20. *Ranks of polynomials*, Sam Houston State University, November 18, 2009

19. *Introduction to multiplier ideals and an application to commutative algebra*, Notre Dame, November 13, 2009

18. *Ranks of polynomials*, UT Austin, October 13, 2009

17. *Arithmetic toric varieties*, UT Austin, October 13, 2009

16. *Introduction to multiplier ideals and an application to commutative algebra*, UT Arlington, October 9, 2009

15. *Ranks of polynomials*, Kansas U., September 22, 2009

14. *Ranks of polynomials*, UIUC, September 4, 2009

13. *Ranks of polynomials*, TCU, April 22, 2009

12. *Ranks of polynomials*, Texas Tech, April 17, 2009

11. *Ranks of polynomials*, Baylor, March 4, 2009

10. *Ranks of polynomials*, Purdue, February 25, 2009

9. *Experimentation at the Frontiers of Reality in Schubert Calculus*, Purdue, February 25, 2009

8. *Ranks of polynomials*, UT Arlington, February 13, 2009

7. *Bounding Hilbert functions of fat point schemes*, UIUC, October 14, 2008

6. *Multiplier ideals of hyperplane arrangements*, UT Austin, April 15, 2008

5. *Multiplier ideals of hyperplane arrangements*, Tulane, March 26, 2008

4. *On the intersection of the curves through a set of points in* $\mathbb{P}^2$, University of Nebraska, October 27, 2006

3. *On the intersection of the curves through a set of points in* $\mathbb{P}^2$, Tulane, September 25, 2006

2. *Multiplier ideals of line arrangements*, University of Utah, September 12, 2006

1. *Singularities in Algebraic Geometry*, Tulane, April 26, 2006

Selected Local Seminar Presentations

18. *Frobenius's Theorem on Linear Preservers of Determinant*, Mathematics Seminar, Boise State University, January 24, 2020

17. *Lucas's theorem and MathOverflow 10*, AGC Seminar, Boise State University, October 11, 2019

16. *Huang's proof of the sensitivity conjecture*, AGC Seminar, Boise State University, September 27, 2019

15. *Hurwitz's 1,2,4,8 theorem via linear algebra*, AGC Seminar, Boise State University, February 8, 2019

14. *A theorem of Polya on polynomials*, AGC Seminar, Boise State University, October 5, 2018

13. *A bound for the Waring rank of the determinant via syzygies*, AGC Seminar, Boise State University, September 14, 2018

12. *Sperner's Theorem and the Erdos-Ko-Rado Theorem*, AGC Seminar, Boise State University, March 9, 2018

11. *High-rank and maximum-rank geometry*, AGC Seminar, Boise State University, October 6, 2017

10. *Recent* advances in Waring rank and apolarity*, AGC Seminar, Boise State University, September 22, 2017

9. *The Gessel-Viennot theorem*, AGC Seminar, Boise State University, April 7, 2017

8. *Lefschetz properties, hyperplane arrangements, inclusion matrices*, AGC Seminar, Boise State University, March 3, 2017

7. *Geometry of high rank loci*, AGC Seminar, Boise State University, January 20, 2017

6. *Arrangement apolarity*, AGC Seminar, Boise State University, February 3, 2017

5. *Random graphs*, AGC Seminar, Boise State University, January 29, 2016

4. *Strassen's additivity conjecture and bounds for Waring rank*, AGC Seminar, Boise State University, January 15, 2016

3. *Waring rank bounds*, AGC Seminar, Boise State University, September 25, 2015

2. *The slope problem*, AGC Seminar, Boise State University, April 17, 2015

1. *Using cotangent to find the sum of* $1/n^{2k}$, AGC Seminar, Boise State University, February 27, 2015

Conference, Session, and Seminar Organization See `https://sites.google.com/site/zteitler/home/events`.

11. *Special Session on Combinatorial and Computational Commutative Algebra and Algebraic Geometry* at the Spring 2016 Western Sectional AMS Meeting, April 9-10, 2016, Salt Lake City (co-organizer)
    21 speakers

10. *AMS Special Session on Tensor Decompositions and Secant Varieties* at the Joint Mathematics Meetings, Seattle, January, 2016 (organizer)
    6 speakers

9. Macaulay2 Workshop, Boise State University, May 27-30, 2015 (local co-organizer)
   37 participants. Supported by NSF DMS 10-02171 / NSF DMS 10-02210.

8. Western Algebraic Geometry Symposium, University of Idaho, October 11–12, 2014 (local co-organizer)
   6 speakers, 58 registered participants. Partially supported by NSF.

7. *Special Session on Combinatorial and Computational Commutative Algebra and Algebraic Geometry* at the Spring 2013 Western Sectional AMS Meeting, April 13-14, 2013, Boulder, Colorado (co-organizer)
   19 speakers

6. *Special Session on Computational and Algorithmic Algebraic Geometry* at the AMS 2011 Fall Western Section Meeting, Salt Lake City, October 22-23, 2011 (co-organizer)
   20 speakers

5. Algebra, Geometry, Cryptology (AGC) Seminar at Boise State, 2010–Present (co-organizer)
   `http://math.boisestate.edu/seminars/agc/`

4. Algebraic Geometry Seminar at Texas A&M, 2007–2010 (co-organizer)

3. *AMS Special Session on Computational Algebra and Convexity* at the Joint Mathematics Meetings, Washington, DC, January, 2009 (co-organizer)
   16 speakers

2. *Special Session on Algebraic Geometry of Matrices and Determinants* at the AMS 2008 Spring Southeastern Meeting, Baton Rouge, March 28-30, 2008 (co-organizer)
   14 speakers

1. Regional conference AGIL: Algebraic Geometry In Louisiana, 2006, 2007 (co-organizer)
   3 speakers at each event

Selected Conferences and Workshops Attended

12. Bruce Reznick 66 fest: A mensch of Combinatorial-Algebraic Mathematics, Bern, Switzerland, July 8, 2019

11. Tensors in Computer Science and Geometry, Simons Institute for the Theory of Computing, Berkeley, CA, November 10–14, 2014

10. Recent Advances in Algebraic Geometry: a conference in honor of Robert Lazarsfeld's 60th birthday, University of Michigan, May 16–19, 2013

9. Western Algebraic Geometry Symposium, University of Utah, October 20–21, 2012

8. Macaulay2 workshop, Wake Forest, NC, Aug. 4–10, 2012

7. Western Algebraic Geometry Symposium, University of Washington, Seattle, April 14–15, 2012

6. IMA (Institute for Mathematics and its Applications) Special Workshop on Macaulay2, Minneapolis, July 2011

5. NCSI/EPSCoR Introduction to Parallel Programming and Cluster Computing, June 2011

4. ARCC (American Institute of Mathematics Research Conference Center) workshop on "Algebraic systems with only real solutions", October, 2010

3. MSRI workshop on *Combinatorial, Enumerative and Toric Geometry*, March, 2009

2. Park City Math Institute summer research program on "Analytic and Algebraic Geometry", July 2008

1. AMS Math Research Communities program on "Computational Algebra & Convexity", June 2008

Academic Advising — Graduate Advising

4. Jake Weedn
   M.S. Mathematics, Boise State University, 2020 (expected)

3. Stuart Nygard
   M.S. Mathematics, Boise State University, 2016
   Thesis: *The density topology on the reals and other spaces*
   `http://scholarworks.boisestate.edu/td/1143/`

2. Monica Josue Agana (Co-advisor: Andrés Eduardo Caicedo)
   M.S. Mathematics, Boise State University, 2015
   Thesis: *Classical theory of rearrangements*
   `http://scholarworks.boisestate.edu/td/1039/`

1. Anna Marie Megale
   M.S. Mathematics, Boise State University, 2015
   Thesis: *The Frobenius problem*
   http://scholarworks.boisestate.edu/td/1048/

Academic Advising — Graduate Committee Member

8. Kennedy Courtney M.S. Mathematics, Boise State University, 2020 (expected)
   Advisor: Jens Harlander

7. Mitchell Scofield
   M.S. Mathematics, Boise State University, 2019
   Advisor: Jens Harlander Thesis: *On the Fundamental Group of Plane Curve Complements*
   https://scholarworks.boisestate.edu/td/1538/

6. Khoi Le
   M.S. Mathematics, Boise State University, 2018

5. Phillip W. Hart
   M.S. Mathematics, Boise State University, 2015
   Advisor: Uwe Kaiser
   Thesis: *Monodromy representation of the braid group*
   http://scholarworks.boisestate.edu/td/989/

4. Tyler Allyn
   M.S. Mathematics, Boise State University, 2014
   Advisor: Jens Harlander
   Thesis: *Diagrammatically reducible 2-complexes*
   http://scholarworks.boisestate.edu/td/815/

3. Uri Rogers
   Ph.D. Electrical and Computer Engineering, Boise State University, 2014
   Advisor: Hao Chen
   Dissertation: *On uniformly most powerful decentralized detection*
   http://scholarworks.boisestate.edu/td/805/

2. Summer Lynne Kisner
   M.S. Mathematics, Boise State University, 2013
   Advisor: Andrés Eduardo Caicedo
   Thesis: *Schur's theorem and related topics in Ramsey theory*
   http://scholarworks.boisestate.edu/td/376/

1. Katherine Kylee Zebedeo
   M.S. Mathematics, Boise State University, 2012
   Advisor: Uwe Kaiser
   Thesis: *Regular homotopy of closed curves on surfaces*
   http://scholarworks.boisestate.edu/td/326/

Academic Advising — Undergraduate Senior Theses

7. Kayla Neal
   B.S. Mathematics, Boise State University, 2018
   Senior thesis: *The Cayley-Bacharach theorem*

6. Amanda Aydelotte
   B.S. Mathematics, Boise State University, 2017
   Senior thesis: *An Exploration of the Chromatic Polynomial*
   `http://scholarworks.boisestate.edu/math_undergraduate_theses/7/`

5. Karly Reid
   B.S. Mathematics, Boise State University, 2017
   Senior thesis: *Hyperbolic Geometry: History, Models, and Art*

4. Kyle Auble
   B.S. Mathematics, Boise State University, 2018

3. Brandon Sams
   B.S. Mathematics, Boise State University, 2017
   Senior thesis: *Complementary Coffee Cups*
   `http://scholarworks.boisestate.edu/math_undergraduate_theses/6/`

2. Stacia Orr
   B.S. Mathematics, Boise State University, 2016
   Senior thesis: *Cubik Mathemagic*

1. Brent El-Bakri
   B.S. Mathematics, Boise State University, 2014
   Senior thesis: *A brief encounter with linear codes*
   `http://scholarworks.boisestate.edu/math_undergraduate_theses/3/`

Academic Advising — Other

2. Mentor for STEP Undergraduate researcher Nick Walker, 2012–2013

1. Appointed to Graduate Faculty, 2011

Service — Professional

5. Member, MAA Committee on Paul R. Halmos–Lester R. Ford Awards, 2017–2021

4. Reviewer for granting agencies:

   (a) Narodowe Centrum Nauki (Poland), 2019

   (b) NSERC (Canada), 2016

   (c) NSA, 2016

3. Referee for journal articles:

Year	# Journals	# Papers
2006	1	1
2009	1	1
2010	3	4
2011	3	3
2012	3	4
2013	3	3
2014	3	3
2015	4	4
2016	7	7
2017	5	6
2018	2	2

2. MathSciNet reviewer, 2007–Present.
   To date: 39 articles reviewed

1. University of Nebraska MCTP-IMMERSE summer program, June-July 2007

Service — Department

12. Personnel & Budget Committee (PBC), 2017–Present; Chair, 2019-2020

11. Visiting Assistant Professor Selection Committee, 2019

10. Graduate Committee, 2017–2019

9. Undergraduate Committee, Mathematics, 2017–2019

8. Computational and Applied Math/Stat Tenure Track Hiring Committee, 2017–2018

7. Salary committee, 2015, 2016

6. Developed ScholarWorks web collection of undergraduate senior theses in mathematics (`http://scholarworks.boisestate.edu/math_undergraduate_theses/`)

5. Scholarship Committee, 2013–Present; Chair, 2014–Present

4. Hosted colloquium visitors:

   (a) Brian Harbourne (University of Nebraska), March 2018
   (b) Aaron Bertram (University of Utah), October 2017
   (c) Bruce Reznick (UIUC), April 2016
   (d) Ellen Veomett (St. Mary's College of California), April 2016
   (e) Hirotachi Abo (U. Idaho), February 2016
   (f) Jarosław Buczyński (IMPAN), November 2014
   (g) Gregory G. Smith (Queen's University), October 2014
   (h) Jennifer Kacmarcik (University of Montana), September 2014, October 2014
   (i) Alexander Woo (University of Idaho), November 2012

(j) Colleen Robles (Texas A&M University), October 2012

(k) Hirotachi Abo (University of Idaho), March 2012

(l) Jim Wolper (Idaho State University), January 2011

3. Faculty advisor for Math Club, 2012–2016, 2017–2018

2. Organized Algebra, Geometry, & Cryptology Seminar 2010–Present

1. Organized travel for Boise State graduate students to attend AMS 2011 Fall Western Section Meeting in Salt Lake City

Service — College

5. College Curriculum Committee (Math & Science), 2019–Present

4. Bronco Day, Apr. 11, 2015

3. Major Madness, Mar. 3, 2015

2. Orientation advising, Summer 2014, Summer 2015

1. Advising Matters Day, Oct. 1, 2014

Service — University

5. Peer reviewer for Program Assessment Review, 2019

4. University Curriculum Committee, September 2014–2016

3. Senate Faculty Diversity Committee, March 2013–2015, Chair, 2015–2016

2. Co-chair, Foundation Scholar Awards Committee, Research/Creativity Sub-Committee, November 2011–April 2012

1. CID-Mathematics Committee, April–October 2011

Community Outreach

3. Co-developed and co-led Boise Math Teachers' Circle, 2015–present
`http://boisemathcircles.org/teachers/`
Supported 2015–2017 by American Institute of Mathematics and Boise State University Concurrent Enrollment

2. Judged student oral and poster presentations at the AAAS (American Association for the Advancement of Science) regional meeting, mathematics symposium, June 25–26, 2012.

1. Correspondence with prison inmate studying from Aschbacher's *Finite Group Theory*, answering questions and providing feedback on proofs and problem solutions (exchanged 9 letters through prison staff intermediary during June–November 2011; following inmate release on parole in December 2011, direct correspondence continued through email for about a year)

Professional Development

6. Boise State Center for Teaching and Learning (CTL) Faculty Learning Community (FCL): Designing for Student Success (DSS), Spring-Fall 2020

5. Faculty Advising Institute, April, 2012

4. Great Ideas for Teaching and Learning Symposium, January, 2012

3. Boise State Best Practices in STEM Teaching Symposium, January, 2011

2. Boise State/NSF STEM Teaching Scholars: Teaching for STEM Student Success, 2010–2011

1. Project NExT, 2006–7 (sepia dot)

Professional Associations

4. Association for Women in Mathematics, 2016–Present

3. Society for Industrial and Applied Mathematics, 2010–Present
   SIAM Activity Group in Algebraic Geometry

2. American Mathematical Society, 2004–Present

1. Mathematical Association of America, 2004–Present

Courses Taught

Key: LD=undergraduate lower division, UD=undergraduate upper division, G=graduate

Term	Course	Course title	Credit hours	Students	Student credit-hours
		University of Michigan			
Fall 2001		Precalculus	4	27	108
Fall 2002		Calculus I	4	26	104
Fall 2003		Calculus I	4	25	100
Fall 2004		Calculus II	4	27	108
		Southeastern Louisiana University			
Fall 2005		Calculus I	5	10	50
		College Algebra	3	23	69
		College Algebra	3	22	66
Spring 2006		Calculus I	5	13	65
		College Algebra	3	14	42
Fall 2006		Calculus II	5	17	85
		Trigonometry	3	22	66
Spring 2007		Calculus I	5	15	75
		Complex Variables (UD)	3	5	15
		Texas A&M University			
Fall 2007		Business Mathematics I (Finite Math)	3	82	246
		Business Mathematics I (Finite Math)	3	88	264

Term	Course	Course title	Credit hours	Students	Student credit-hours
Spring 2008		Calculus II	4	90	360
Fall 2008		Topics in Applied Mathematics I (Linear Algebra)	3	19	57
		Topics in Applied Mathematics I (Linear Algebra)	3	35	105
Spring 2009		Calculus II	4	88	352
Fall 2009		Calculus II	4	43	172
		Calculus II	4	48	192
Spring 2010		Calculus II	4	36	144
		Boise State University			
Fall 2010	187	Discrete and Foundational Mathematics I	4	25	100
Spring 2011	170	Calculus I	4	36	144
	311	Foundations of Geometry	3	27	81
		2010–11 totals:	**11**	**88**	**325**
Fall 2011	187	Discrete and Foundational Mathematics I	4	25	100
	405/505	Abstract Algebra (UD/G)	3	10	30
Spring 2012	187	Discrete and Foundational Mathematics I	4	25	100
	506	Advanced Algebra (G)	3	9	27
Summer 2012	275	Multivariable and Vector Calculus	4	23	92
		2011–12 totals:	**18**	**92**	**349**
Fall 2012	187	Discrete and Foundational Mathematics I	4	25	100
	275	Multivariable and Vector Calculus	4	46	184
	414/514	Advanced Calculus (UD/G)	4	12	48
Spring 2013	515	Advanced Analysis (G)	3	5	15
		Independent study: complex analysis	3	1	
		Independent study: graph theory	3	1	
		2012–13 totals:	**21**	**90**	**350**
Fall 2013	275	Multivariable and Vector Calculus	4	120	480
		Independent study: chip firing	3	1	3
Spring 2014		Topics in Graph Theory (UD)	3	7	21
	311	Foundations of Geometry	3	20	60
Summer 2014	275	Multivariable and Vector Calculus	4	30	120
		2013–14 totals:	**17**	**178**	**684**
Fall 2014	187	Discrete and Foundational Mathematics I	3	27	81
	507	Advanced Number Theory (G)	3	3	9
		Independent study: algebraic geometry	3	1	3
	401	Senior thesis: *A brief encounter with linear codes*	1	1	1
Spring 2015	301	Introduction to Linear Algebra (UD)	3	26	78
	512	Advanced Topology (G)	3	5	15
		2014–15 totals:	**16**	**63**	**187**
Fall 2015	314	Foundations of Analysis (UD)	3	22	66
	415/515	Advanced Calculus (UD/G)	4	6	24
		Independent study: Elliptic curves	1	1	1

Term	Course	Course title	Credit hours	Students	Student credit-hours
Spring 2016	187	Discrete and Foundational Mathematics I	3	14	42
	311	Foundations of Geometry	3	10	30
	401	Senior thesis: *Cubik Mathemagic: Group theory of Rubik's cubes*	1	1	1
	498/598	Seminar in Mathematics	1	1	1
		2015–16 totals:	**16**	**55**	**165**
Fall 2016		Sabbatical			
Spring 2017	387	Discrete and Foundational Mathematics II	4	5	20
	305	Intro. to Abstract Algebra and Number Theory	3	17	51
	401	Senior thesis: *Complementary coffee cups*	1	1	1
	401	Senior thesis: *From Rings to Graphs: A Different Look at Structure*	1	1	1
Summer 2017	275	Multivariable and Vector Calculus	4	21	84
	275	Multivariable and Vector Calculus	4	15	60
		2016–17 totals:	**17**	**60**	**217**
Fall 2017	187	Discrete and Foundational Mathematics I	3	13	39
	405/505	Abstract Algebra (UD/G)	3	19	57
	401	Senior thesis: *An Exploration of the Chromatic Polynomial*	1	1	1
	401	Senior thesis: *Hyperbolic Geometry: History, Models, and Art*	1	1	1
Spring 2018	187	Discrete and Foundational Mathematics I	3	15	45
	506	Advanced Algebra (G)	3	8	24
Summer 2018	275	Multivariable and Vector Calculus	4	14	56
		2017–18 totals:	**18**	**71**	**223**
Fall 2018	171	Calculus I: Theory and Applications	4	8	32
	305	Intro. to Abstract Algebra and Number Theory	3	4	12
	401	Senior thesis: *The Cayley-Bacharach Theorem*	1	1	1
	498/598	Seminar in Mathematics	1	1	1
Spring 2019	187	Discrete and Foundational Mathematics I	3	17	51
	387	Discrete and Foundational Mathematics II (UD)	4	4	16
	406	Number Theory (UD)	3	5	15
Summer 2019	593	Thesis: Problems in geometry of curves and surfaces	1	1	1
		2018–19 totals:	**20**	**40**	**129**
Fall 2019	403/503	Linear Algebra (UD/G)	3	13	39
	498/598	Seminar in Mathematics	1	1	1
Spring 2020	305	Intro. to Abstract Algebra and Number Theory	3	17	51
	414/514	Real Analysis	3	4	12
	593	Thesis	1	1	1
Summer 2020	275	Multivariable and Vector Calculus	4	36	144
	496	Independent Study: Topics in Category Theory	3	1	3
		2019–20 totals:	**18**	**73**	**251**
Fall 2020	333	Differential Equations with Matrix Algebra	4	40	160
	594	Selected Topics: Computational Algebra	3	3	9

Term	Course	Course title	Credit hours	Students	Student credit-hours
	598	Graduate Seminar I: Introduction and Research	5	1	5

Citizenship United States

Languages English (native), Spanish (elementary), French (elementary), German (elementary).