

Jason McCullough

Curriculum Vitae

Iowa State University
Department of Mathematics
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Education

- 2009 **Ph.D.**, *Mathematics*, University of Illinois at Urbana-Champaign.
Thesis advisor: Sankar Dutta
Thesis title: On the Strong Direct Summand Conjecture
- 2008 **M.S.**, *Teaching Mathematics*, University of Illinois at Urbana-Champaign.
- 2003 **B.S.**, *Mathematics*, Michigan State University, East Lansing, MI.
- 2003 **B.S.**, *Computer Science*, Michigan State University, East Lansing, MI.

Professional Appointments

- 2020–2023 **Scott Hanna Faculty Fellow**, *Iowa State University*.
- 2020– **Associate Professor**, *Iowa State University*.
- 2017–2020 **Assistant Professor**, *Iowa State University*.
- 2016–2017 **Assistant Professor II**, *Rider University*.
- 2013–2016 **Assistant Professor I**, *Rider University*.
- Fall 2012 **Postdoctoral Fellow**, *Mathematical Sciences Research Institute*, Berkeley, CA.
- 2009–2012 **Visiting Assistant Professor**, *University of California, Riverside*.

Selected Honors and Awards

- 2020 **Scott Hanna Faculty Fellowship**
- 2018 **Banff International Research Station accepted Workshop Proposal**
"New Trends in Syzygies" - co-organized with **Guilio Caviglia**
- 2015 **Favorite Mathematics Professor - Rider**
- 2012 **MSRI Postdoctoral Fellowship**
- 2009 **Brahana TA Instructional Award Winner - UIUC**
Irving Reiner Memorial Award in Algebra - UIUC
Trijtzinsky Memorial Fellowship - UIUC
- 2005 **University Fellowship - UIUC**
- 2003 **NSF VIGRE Fellowship - UIUC**
Board of Trustees GPA Award - MSU

External Grants

Funded

- 2019-2021 **NSF Division Of Mathematical Sciences Conference Grant**, *CA+ - An Upper Midwest Commutative Algebra Conference*, \$30,000, (J. McCullough (PI), D. Erman (Co-PI), C. Berkesch (Co-PI)).
- 2019-2022 **NSF Division Of Mathematical Sciences Grant**, *"Graded Syzygies: Geometry and Computation"*, \$150,000, (J. McCullough (PI)).
- 2018-2023 **Simons Foundation Collaboration Grant**, *"Graded Free Resolutions"*, \$42,000, (J. McCullough (PI)).
Withdrawn by PI in 2019 per Simons policy upon NSF award notification (\$8,400 of funding received)
- 2013-2015 **American Mathematical Society - Simons Foundation Travel Grant**, \$4,800, (J. McCullough (PI)) .
- 2012 **American Mathematical Society - Mathematical Research Community Travel Grant**, \$2,250, (J. McCullough (PI), C. Huneke, P. Mantero, A. Seceleanu, B. Snapp, B. Stone).

Not Funded

- 2019 **Sloan Research Fellowship**, \$75,000, (J. McCullough (PI)).
- 2019 **NSF Division Of Mathematical Sciences CAREER Grant** , *"CAREER: Computational Algebraic Geometry"*, \$447,212, (J. McCullough (PI)).
- 2018 **NSF Division Of Mathematical Sciences CAREER Grant** , *"CAREER: Computational Algebraic Geometry"*, \$425,509, (J. McCullough (PI)).
- 2017 **NSF Division Of Mathematical Sciences Grant** , *"Graded Syzygies: Geometry and Computation"*, \$197,914, (J. McCullough (PI)).
- 2017 **Simons Foundation Collaboration Grant**, *"Graded Free Resolutions, Projective Dimension and Regularity of Ideals"*, \$42,000, (J. McCullough (PI)).

Internal Grants

Funded

- 2013 **Rider Summer Research Fellowship**, \$8352, (J. McCullough (PI)).

Collaborators

Giulio Caviglia - Purdue University

Marc Chardin - Université Pierre et Marie Curie, France

Gunnar Fløystad - University of Bergen, Norway

Craig Huneke - University of Virginia

Kuei-Nuan Lin - Penn State University Greater Allegheny

Paolo Mantero - University of Arkansas

Lance Miller - University of Arkansas

Luis Núñez-Betancourt - Centro de Investigación en Matemáticas (CIMAT), Mexico

Irena Peeva - Cornell University

Alexandra Seceleanu - University of Nebraska

Bart Snapp - Ohio State University

Publications

- 1 **Canonical modules and class groups of Rees-like algebras**, (with *P. Mantero* and *L. Miller*), to appear in Michigan Mathematics Journal.
- 2 **Subadditivity of Syzygies of Ideals and Related Problems**, to appear in a special volume dedicated to the 75th birthday of David Eisenbud, *I. Peeva* (ed.).
- 3 **Singularities of Rees-like Algebras**, (with *P. Mantero* and *L. Miller*), *Mathematische Zeitschrift*, 297 (2021), no. 1-2, 535–555..
- 4 **The Regularity Conjecture for Prime Ideals in Polynomial Rings**, (with *I. Peeva*), The Regularity Conjecture for prime ideals in polynomial rings. *European Mathematical Society Surveys in the Mathematical Sciences* 7 (2020), no. 1, 173–206.
- 5 **Quadratic Gorenstein Algebras Many Surprising Properties**, (with *A. Seceleanu*), Quadratic Gorenstein algebras with many surprising properties. *Archiv der Mathematik (Basel)* 115 (2020), no. 5, 509–521.
- 6 **Green-Lazarsfeld Condition for Toric Edge Ideals of Bipartite Graphs**, (with *Z. Greif*), *Journal of Algebra* 562 (2020) 1–27.
- 7 **Asymptotically Good Homological Error-correcting Codes**, (with *H. Newman**), *Journal of Algebra, Combinatorics, Discrete Structures and Applications*, Volume 6, Number 3 (2019), 135–145.
- 8 **On the Maximal Graded Shifts of Ideals and Modules**, *Journal of Algebra*, Volume 571, Number 1 (2021), 121–133.
- 9 **The Projective Dimension of Three Cubics is at Most Five**, (with *P. Mantero*), *Journal of Pure and Applied Algebra* 223 (2019), no. 4, 1383–1410.
- 10 **Regularity of Prime Ideals**, (with *M. Chardin*, *G. Caviglia*, *I. Peeva*, *M. Varbaro*), *Mathematische Zeitschrift*, Volume 291 (2019), Issue 1-2, pp 421–435.
- 11 **Stillman’s Question for Exterior Algebras and Herzog’s Conjecture on Betti Numbers of Syzygy Modules**, *Journal of Pure and Applied Algebra* 223 (2019), no. 2, 634–640.
- 12 **Counterexamples to the Eisenbud-Goto Regularity Conjecture**, (with *I. Peeva*), *Journal of the American Mathematical Society*, Volume 31, Number 2 (2018), 473–496.
- 13 **A Tight Bound on the Projective Dimension of Four Quadrics**, (with *C. Huneke*, *P. Mantero*, *A. Seceleanu*), *Journal of Pure and Applied Algebra*, Volume 222, Issue 9 (2018), 2524–2551.
- 14 **A Finite Classification of (x, y) -Primary Ideals of Low Multiplicity**, (with *P. Mantero*), *Collectanea Mathematica*, 69 Issue 1 (2018), 107–130.
- 15 **Three Themes on Syzygies**, (with *G. Fløystad* and *I. Peeva*), *Bulletin of the American Mathematical Society (NS)* 53 (2016), no. 3, 415–435.
- 16 **Multiple Structures with Arbitrarily Large Projective Dimension on Linear Subspaces**, (with *C. Huneke*, *P. Mantero*, *A. Seceleanu*), *Journal of Algebra* 447 (2016), 183–205.

- 17 **Infinite Graded Free Resolutions**, (*with I. Peeva*), Commutative Algebra and Noncommutative Algebraic Geometry Volume 1: Expository Articles (Eisenbud, Iyengar, Singh, Stafford, Van den Bergh eds.), Math. Sci. Res. Inst. Publ. No. 67, Cambridge University Press, New York (2015), 215–258.
- 18 **A Multiplicity Bound for Graded Rings and a Criterion for the Cohen-Macaulay Property**, (*with C. Huneke, P. Mantero, A. Seceleanu*), Proceedings of the American Mathematical Society 143 no. 6 (2015), 2365-2377.
- 19 **Hypergraphs and Regularity of Square-free Monomial Ideals**, (*with Kuei-Nuan Lin*), International Journal of Algebra and Computation 23 no. 7 (2013), 1573–1590.
- 20 **Projective Dimension of Algebras Generated by Quadrics of Codimension Two**, (*with C. Huneke, P. Mantero, A. Seceleanu*), Journal of Algebra 393 (2013), 170–186.
- 21 **Bounding Projective Dimension**, (*with A. Seceleanu*), Commutative Algebra. Expository Papers Dedicated to David Eisenbud on the Occasion of His 65th Birthday (I. Peeva, Ed.), Springer-Verlag, London (2013), 551-576 .
- 22 **A Polynomial Bound on the Regularity of an Ideal in Terms of Half of the Syzygies**, *Mathematical Research Letters* 19 no. 3 (2012), 555-565.
- 23 **Ideals with Larger Projective Dimension and Regularity**, (*with J. Beder, L. Núñez-Betancourt, A. Seceleanu, B. Snapp, B. Stone*), Journal of Symbolic Computation 46 (2011), 1105-1113 .
- 24 **A Family of Ideals with Few Generators in Low Degree and Large Projective Dimension**, *Proceedings of the American Mathematical Society* 139 no. 6 (2011), 2017-2023.
- 25 **A Note on the Strong Direct Summand Conjecture**, *Proceedings of the American Mathematical Society* 137 no. 9 (2009), 2857–2864.
- 26 **On the Strong Direct Summand Conjecture**, *PhD Thesis*, University of Illinois (2009).
- 27 **SRPT Optimally Uses Faster Machines to Minimize Flow Time**, (*with E. Torng*), ACM Transactions on Algorithms 5 no. 1 (2008), 1-25.
- 28 **A Generalized Floor Bound on the Minimum Distance of Geometric Goppa Codes**, (*with B. Lundell*), Journal of Pure and Applied Algebra 207 (2005), 155-164.
- 29 **SRPT Optimally Uses Faster Machines to Minimize Flow Time**, (*with E. Torng*), Proceedings of the Fifteenth Annual ACM-SIAM Symposium on Discrete Algorithms, ACM, New York (2004), 350-358.

Submitted Articles

G-Quadratic, LG-Quadratic, and Koszul Quotients of Exterior Algebras, (*with Z. Mere**).

Works in Progress

Koszul Property for Chow Rings of Matroids, (*with M. Mastroeni*).

* denotes undergraduate student advisee.

Teaching

Teaching Experience

Iowa State University

Math 619	Commutative Algebra	<i>Fall 2019</i>
Math 610	Combinatorial Commutative Algebra (EGR)	<i>Spring 2020</i>
Math 505	Abstract Algebra II	<i>Spring 2019</i>
Math 504	Abstract Algebra I (graduate)	<i>Fall 2018</i>
Math 503	Intermediate Abstract Algebra	<i>Spring 2021</i>
Math 495	Topics: Computational Algebraic Geometry	<i>Fall 2021</i>
Math 350	Number Theory	<i>Spring 2021</i>
Math 301	Abstract Algebra I (undergraduate)	<i>Fall 2019</i>
Math 265	Calculus III	<i>3 times</i>
Math 201	Introduction to Proofs	<i>2 times</i>
Math 151	Calculus for Business and Social Sciences	<i>Fall 2018</i>
	<u>Rider University</u>	
Math 490	Independent Research (Polyhedral Error-Correcting Codes)	<i>Fall 2016</i>
Math 410	Complex Analysis	<i>Spring 2015</i>
Math 402	Computational Commutative Algebra (supervised study)	<i>Spring 2014</i>
Math 402	Differential Geometry	<i>Fall 2013</i>
Math 401	Modern Algebra	<i>4 times</i>
Math 340	Probability and Statistics	<i>Fall 2016</i>
Math 212	Calculus III	<i>7 times</i>
Math 211	Calculus II	<i>4 times</i>
Math 210	Calculus I	<i>Spring 2014</i>
Math 105	Algebra and Trigonometry	<i>Fall 2014</i>
Math 102	Finite Mathematics	<i>3 times</i>
	<u>University of California, Riverside</u>	
Math 260	Topics in Commutative Algebra	<i>2 times</i>
Math 150A	Intermediate Analysis	<i>Spring 2011</i>
Math 133	Geometry	<i>Winter 2011</i>
Math 131	Linear Algebra 1	<i>Winter 2012</i>
Math 120	Optimization	<i>Spring 2012</i>
Math 22	Calculus for Business	<i>Fall 2009</i>
Math 11	Intro to Discrete Structures	<i>2 times</i>
Math 9C	First-Year Calculus (Series)	<i>5 times</i>
Math 9B	First-Year Calculus (Integration)	<i>4 times</i>
Math 8B	Introduction to College Mathematics for Science	<i>2 times</i>
	<u>University of Illinois</u>	
Math 241	Vector Calculus w/Mathematica	<i>2 times</i>
Math 220	Calculus 1 w/Mathematica	<i>Spring 2007</i>
Math 220	Calculus 1	<i>Fall 2006</i>
Math 133	Elementary Linear Algebra	<i>Summer 2008</i>

Advising

PhD Advisor for:

Zach Greif - expected Spring 2023

Josh Rice - expected Spring 2022

Postdoc Mentor for:

Matthew Mastroeni - 2021-2023

Program of Study Committee Member for:

O'Neill Kingston (PhD - 2020), Erich Jauch (PhD - 2020), Nate Benjamin (PhD - 2022), Caleb Camrud (PhD - 2022), Jordan Disch (PhD - 2022), Kurt Gabriel (MS - 2020), Matthew Hobart (MS - 2021)

Undergraduate Research Advisor/Reading Course Instructor for:

2019–2020 Zach Mere - "G-Quadratic, LG-Quadratic, and Koszul Quotients of Exterior Algebras"*

2019 Nick Day - "Computational Algebraic Geometry"

2018 Chad Berner - "Computational Algebraic Geometry"

2017 Zach Greif - "Linear Syzygies of Toric Edge Ideals of Bipartite Graphs"*

2016 Heather Newman - "Asymptotically Good Homological Error-correcting Codes"*

* denotes publication of joint paper

Graduate Teaching Mentor for:

Kate Lorensen - Spring 2020

External PhD Thesis Reviewer for:

Manolis C. Tsakiris - University of Genoa - Spring 2021

Talks

Invited Lecture Series

2017 Six-talk lecture series at Summer School on Homological Commutative Algebra - Sophus Lie Conference Center, Nordfjordeid, Norway:

1. "Free Resolutions and Hilbert Functions"
2. "Hilbert Series and Multiplicity"
3. "The Eisenbud-Goto Conjecture - The Cohen-Macaulay Case"
4. "Counterexamples to the Eisenbud-Goto Conjecture"
5. "Stillman's Question"
6. "The Ananyan-Hochster Proof of Stillman's Question"

Invited Conference Talks

2021 AMS Sectional Meeting (virtual), Special Session on Homological and Commutative Algebra - "Monomial Ideals and Koszul Quotients of Exterior Algebras"

2020 Fellowship of the Ring - a Worldwide Online Commutative Algebra Seminar hosted by MSRI - "Subadditivity of Syzygies and Related Problems" (approximately 120 live online attendees)

Joint AMS-MAA Math Meetings, AMS Special Session on Commutative Algebra - Denver, CO - "Green-Lazarsfeld Conditions for Toric Edge Ideals of Bipartite Graphs"

- 2018 Plenary talk at KUMUNU Conference on Commutative Algebra - Lawrence, KS - "Singularities of Rees-like Algebras"
AMS Sectional Meeting, Special Session on Interactions between Combinatorics and Commutative Algebra - Fayetteville, AR - "Linear Syzygies of Toric Edge Ideals of Bipartite Graphs"
- 2017 Plenary talk at Conference on Structures on Free Resolutions - Lubbock, TX - "Regularity of Prime Ideals"
Plenary talk at Stillman's Conjecture and other Progress on Free Resolutions: a workshop in honor of the sixtieth birthdays of Dave Bayer and Mike Stillman - Berkeley, CA - "The Projective Dimension of 3 Cubics"
Princeton-Rider Workshop on the Homotopy Theory of Polyhedral Products - Princeton, NJ - "Recent Advances in the Theory of Free Resolutions"
AMS Sectional Meeting, Special Session on Commutative Algebra - New York City, NY - "Maximal Graded Shifts of Ideals and Modules"
Plenary talk at Spring Lecture Series on Geometry and the Equations Defining Projective Varieties - Fayetteville, AR - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
- 2016 Plenary talk at Oberwolfach workshop on Asymptotic Phenomena in Local Algebra and Singularity Theory - Oberwolfach, Germany - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
Plenary talk at the Commutative Algebra Conference in Honor of Craig Huneke's 60th Birthday - Ann Arbor, MI - "Rees-like Algebras"
AMS Sectional Meeting, Special Session on Computational and Combinatorial Commutative Algebra - Athens, GA - "The Projective Dimension of 4 Quadrics"
- 2014 Plenary talk at Route 81 Conference - Ithaca, NY - "Tight Bounds on Projective Dimension"
AMS Sectional Meeting, Special Session on Developments from MSRI Programs in Commutative Algebra and Noncommutative Algebraic Geometry and Representation Theory - San Francisco, CA - "Multiple Structures with Arbitrarily Large Projective Dimension Supported on Linear Subspaces"
- 2013 Plenary talk at the MSRI workshop "Representation Theory, Homological Algebra, Free Resolutions Workshop" - Berkeley, CA - "Bounds on the Projective Dimension and Regularity of Ideals"
AMS Sectional Meeting, Special Session on Recent Advances on Commutative Algebra and Its Applications - Louisville, KY - "Multiple Structures with Arbitrarily Large Projective Dimension supported on Linear Subspaces"
Commutative algebra and its interactions with algebraic geometry - CIRM, Marseille - "Multiple Structures with Arbitrarily Large Projective Dimension Supported on Linear Subspaces"
Joint AMS-MAA Math Meetings, AMS Special Session on Algebraic Geometry and Commutative Algebra - San Diego, CA - "The Projective Dimension of Quadrics"
- 2012 AMS Sectional Meeting, Special Session on Commutative Algebra - Tuscon, AZ - "A Polynomial Bound on the Regularity of an Ideal in Terms of Half of the Syzygies"
- 2011 AMS Sectional Meeting, Special Session on Commutative Algebra - Salt Lake City, UT - "Ideals with Large Projective Dimension and Regularity"

- Joint AMS-MAA Math Meetings, AMS Special Session on Local Commutative Algebra - New Orleans, LA - "On the Strong Direct Summand Conjecture"
- 2010 Mathematical Research Community - Snowbird, UT - "Bounds on Projective Dimension"
- 2009 AMS Sectional Meeting, Special Session on Commutative Algebra - Urbana, IL - "On the Strong Direct Summand Conjecture"
- 2005 Joint AMS-MAA Math Meetings, AMS Special Session on Algebraic Geometry Codes - Atlanta, GA - "Generalized Floor Bounds on the Minimum Distance of Geometric Goppa Codes"

Other Invited Talks

- 2021 Indian Institute of Technology Bombay - Online Commutative Algebra Seminar - "The Eisenbud-Goto Conjecture"
- Indian Institute of Technology Bombay - Online Commutative Algebra Seminar - "Properties of Rees-Like Algebras"
- 2020 Algebra Seminar - University of Illinois, Chicago - "Subadditivity of Syzygies and Related Problems" (cancelled due to COVID-19 pandemic)
- 2019 Department Colloquium - University of Louisiana, Lafayette - "Degrees and Complexity of Projective Varieties"
- Algebra Seminar - University of Louisiana, Lafayette - "Linearly Presented Toric Edge Ideals of Bipartite Graphs"
- Department Colloquium - University of Wisconsin - "Degrees and Complexity of Projective Varieties"
- 2018 Commutative Algebra Seminar - University of Nebraska - "Subadditivity of Syzygies"
- Algebraic Geometry Seminar - University of Illinois - "The Degrees of Varieties"
- Commutative Algebra Seminar - University of Michigan - "Maximal Graded Shifts and the Shapes of Free Resolutions"
- Commutative Algebra Seminar - University of Nebraska - "Stillman's Question for Exterior Algebras and Herzog's Conjecture of the Linear Strands of Syzygy Modules"
- Commutative Algebra Seminar - University of Nebraska - "Maximal Graded Shifts and the Shapes of Free Resolutions"
- Commutative Algebra Seminar - University of Missouri - "Maximal Graded Shifts and the Shapes of Free Resolutions"
- 2017 Algebraic Geometry Seminar - Cornell University - "Maximal Graded Shifts and the Shapes of Free Resolutions"
- Department Colloquium - Iowa State University - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
- Department Colloquium - Claremont McKenna College - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
- Department Colloquium - George Mason University - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
- Department Colloquium - University of Kentucky - "Rees-like Algebras and the Eisenbud-Goto Conjecture"

- 2016 Commutative Algebra Seminar - City University of New York Graduate Center - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
 Algebra Seminar - Rutgers University - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
 Commutative Algebra Seminar - University of Illinois at Urbana-Champaign - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
 Commutative Algebra (Eisenbud) Seminar - UC Berkeley - "Rees-like Algebras and the Eisenbud-Goto Conjecture"
 Commutative Algebra (Eisenbud) Seminar - UC Berkeley - "Projective Dimension and Regularity of Primary Ideals"
 Commutative Algebra Seminar - City University of New York Graduate Center - "Multiple Structures with Arbitrarily Large Projective Dimension Supported on Linear Spaces"
- 2015 Department Colloquium - University of Nebraska - "Stillman's Question"
 Algebra Seminar - University of Arkansas - "A Polynomial Bound on the Regularity of Ideals in Terms of Half of the Syzygies"
- 2014 Department Colloquium - UC Riverside - "Bounds on Projective Dimension - A UCR Story"
- 2013 Commutative Algebra Seminar - City University of New York Graduate Center - "A Tight Bound on the Projective Dimension of Four Quadrics"
 Commutative Algebra Seminar - University of Michigan - "A Tight Bound on the Projective Dimension of Four Quadrics"
 Algebraic Topology Seminar - Princeton University - "Hypergraphs and the Regularity of Square-free Monomial Ideals"
- 2012 Commutative Algebra (Eisenbud) Seminar - UC Berkeley - "A Polynomial Bound on the Regularity of Ideals in Terms of Half of the Syzygies"
 Commutative Algebra Postdoc Seminar - MSRI - "Bounds on Projective Dimension and Regularity"
 Commutative Algebra Seminar - University of Michigan - "Ideals with Large Projective Dimension and Regularity"
 Department Colloquium - UC Riverside - "Bounds on the Projective Dimension and Regularity of Ideals"
 Department Colloquium - University of Louisville - "Bounds on the Projective Dimension and Regularity of Ideals"
- 2011 Computational and Commutative Algebra Seminar - Cornell University - "Ideals with Larger Projective Dimension and Regularity"
 Department Colloquium - Reed College - "Ideals with Large Projective Dimension"
- 2009 Graduate Student Commutative Algebra Seminar - Purdue University - "On the Strong Direct Summand Conjecture"
 Department Colloquium - University of Louisville - "Vanishing of Maps of Tor and the Strong Direct Summand Conjecture"

Institutional Service

- 2021–present Co-director ISU Mathematics Postbaccalaureate program (w/Bernard Lidický)
- 2020–present ISU Putnam Exam team coach
- 2019–present Math 301 Course Coordinator
- 2018–present Algebra and Geometry Seminar Co-organizer
 - 2020–2021 Ad hoc Department Finance Review Committee
 - 2018–2021 Department of Mathematics Graduate Committee
 - 2018–2020 Graduate Qualifying Exam Committee (Algebra)
 - 2018-2019 Departmental Hiring Committee
- Spring 2018 Canvas and MyMathLab Coordinator - Math 265
- 2016 University Honors Council - Rider
 - Middle States Accreditation Working Group - Rider
- 2015 GLASS-STEM Math Freshman Workshop - Rider
 - Member of Vision for Sciences Committee - Rider
 - Mentor for Rider Collaborative Research Project (CRP) on Tropical Mathematics and Phylogenetics (students: Alan Cid, Julie Canonica, Justin Chilicki, Danielle Yucht)
 - Open House - Rider (x4)
- 2010, 2011 Putnam Team Coach - UCR
- 2010, 2011 Organizer of Topics in Commutative Algebra Seminar - UCR
- 2008 Math 241 Course Captain - UIUC
- 2006 Organizer of Combinatorial Commutative Algebra Theory Seminar - UIUC
- 2005 Member of Mathematics Department Graduate Affairs Committee - UIUC

Service to the Profession

Referee/reviewer for various journals and grants including:

- Algebra and Number Theory (×3)
- Algebra and Representation Theory
- Algebraic Geometry (×2)
- Archiv der Mathematik (×2)
- Bulletin of the London Math. Society
- Canadian Journal of Mathematics
- Collectanea Mathematica
- Communications in Algebra (×6)
- Compositio Mathematica
- Electronic Journal of Combinatorics
- Illinois Journal of Mathematics
- International Math. Res. Notices (×2)
- Journal of Algebra (×5)
- Journal of Algebra and its Applications
- Journal of Combinatorial Algebra
- Journal of Commutative Algebra (×5)
- Journal of Pure & Applied Algebra (×2)
- Journal of the American Math. Society
- Journal of the European Math. Society
- Mathematics Research Letters
- Math. Proc. Camb. Phil. Soc.
- Mathematica Scandinavica
- Mathematische Zeitschrift
- Notices of the American Math. Society
- Proc. of the Amer. Math. Soc. (×2)
- Rev. de la Real Acad. de Ciencias Exactas, Fis. y Nat. Serie A: Matemáticas
- Rocky Mountain Journal of Math.
- Trans. of the Amer. Math. Soc. (×2)
- AMS-NSA grants
- MathSciNet (×27)

Reviewer for book proposals from: AMS Graduate Texts in Mathematics, Cambridge University Press, Oxford University Press

- 2017–present Editorial Board Member for the International Journal of Algebra and Computation
- 2021 Co-organizer of Special Session on Commutative Algebra - Central AMS Sectional Meeting - Omaha, Nebraska
- 2020–present Co-organizer of CA+: An Upper Midwest Commutative Algebra Conference - Annual meetings at ISU, UWisc., UMinn. since 2020
- 2019 Co-organizer of Underrepresented Students in Topology and Algebra Research Symposium (USTARS) - Iowa State University
- 2018 Co-organizer of BIRS workshop "New Trends in Syzygies" - Banff, Alberta
- 2016 Oberwolfach Research Report Writer
- 2015 Co-organizer of Special Session on Syzygies - Joint AMS-MAA Math Meetings, San Antonio
- Co-organizer - Undergraduate Proof-writing Seminar - Rider
- 2011 Co-organizer of Special Session on Commutative Algebra - Joint AMS-MAA Math Meetings, New Orleans