

Curriculum Vitae: Claudia Miller

2023

Mathematics phone: (315) 443-1493
Syracuse University fax: (315) 443-1475
Syracuse, NY 13244-1150 email: clamille@syr.edu

Research Interests: Commutative Algebra, Homological Algebra, Algebraic Geometry

Employment:

2024 (spring), Research Professor, Mathematical Sciences Research Institute, Berkeley
2013 (spring), Research Member, Mathematical Sciences Research Institute, Berkeley
2011-present, Professor, Syracuse University
2003-2011, Associate Professor, Syracuse University
2003 (spring), Postdoctoral Fellow, Mathematical Sciences Research Institute, Berkeley
2002 (fall), Visiting Assistant Professor, University of Nebraska
2001-2002, Assistant Professor, University of Toronto
2000-2001, Visiting Research Instructor, Michigan State University
1997-2000, Assistant Professor, University of Michigan

Education:

1997, Ph.D., University of Illinois at Urbana-Champaign
1993, Certificate of Advanced Study, Cambridge University.
1990, M.S., University of Illinois at Urbana-Champaign.
1989, B.S., Georgia Institute of Technology (chemistry).

Grants and Awards:

2024 NSF Conference Grant: Bielefeld workshop, Sept 2024
2023-2026 NSF Grant (DMS #2302198).
2022-2027 Simons Foundation Collaboration Grant
2022 NSF Conference Grant (with Wehrli): 3rd Upstate NY Topology Seminar, Oct 2022.
2018-2021 NSF Grant, NCE to 2022 (DMS #1802207).
2016-2018 Douglas R. Anderson Faculty Scholar (funded by the Math Department)
2016 Syracuse University Small Grant (with Zacharia).
2016 Syracuse University Seed Grant.
2010-2013 NSF Grant, no-cost extension to 2015 (DMS #1003384).
2012-2013 NSF Conference Grant (with Iyengar, Leuschke, Zacharia): SU workshop, Apr 2012.
2012 University Scholar-Teacher of the Year, Syracuse University.
2008-2010 NSA Grant, (#H98230-08-1-0025).
2006-2008 NSA Grant (Young Investigator), no-cost extension to 2009 (#98230-06-1-0035).
2005-2006 NSA Conference Grant (with Iyengar, Leuschke, Singh) Minnowbrook workshop, Aug 2005.
2000-2004 NSF Grant, no-cost extension to 2007 (DMS #0196121).
1998 Rackham Summer Research Grant, University of Michigan.
1997 Irving Reiner Award (award for best algebra thesis), University of Illinois.

Professional Activities:

- University Senate, 2024-2026
- Co-organizer, BIRS/PIMS Workshop at Banff, “Singularities, D-modules, and Connections to Physics” (with Christine Berkesch, Linquan Ma, Sebastian Olano, Uli Walther), Sept 2025.
- Co-organizer, Workshop at University of Bielefeld, Germany, “Rank conjectures in algebraic topology and commutative algebra”, Sept 2024.
- Co-organizer and co-principal-lecturer, MSRI Summer Graduate School, “Multigraded and differential graded methods in commutative algebra” (with Michael Brown), July/Aug 2024.
- Research in Groups, IAS (Institute for Advanced Study, Princeton), “Derived differential operators” (with Eamon Gallego-Quinlan, Jack Jeffries, Devlin Mallory, Josh Pollitz), July 2024.
- Co-organizer, Introductory Workshop at MSRI Semester Program, 2024.
- Member, AWM JMM Committee, 2022-2025, including running the Poster Session and Mentoring Lunch for women graduate students and other organizational activities.
- Member of NSF Review Panel, multiple times.
- Co-organizer for AMS Special Session on Commutative Algebra, Differential Operators, and Singularities, Creighton University, October 2023.
- Syracuse University Arts & Sciences Academic Strategic Planning Committee, 2022-2023.
- Co-organizer for AWM Special Session, “Women in Commutative Algebra” (with Janet Striuli), JMM Boston, Jan 2023.
- Co-organizer, Fellowship of the Ring, a national online Commutative Algebra seminar (headed by David Eisenbud), Spring 2020-Spring 2023
- Co-organizer, Women in Commutative Algebra and Algebraic Geometry Workshop(s), a series of virtual workshops at the Fields Institute, Toronto, 2022-2024.
- Co-organizer for Upstate New York Topology Seminar (with Stephan Wehrli), regional conference, Syracuse University, Oct 2022.
- Co-organizer, BIRS/PIMS Workshop at Banff, “Rank conjectures in algebraic topology and commutative algebra” (with Natàlia Castellana, Srikanth B. Iyengar, and Marc Stephan), Fall 2022.
- Co-organizer, virtual seminar series for junior participants of the BIRS/PIMS Workshop at Banff (with Natàlia Castellana, Srikanth B. Iyengar, and Marc Stephan), Summer 2022.
- Co-principal lecturer, PASCA summer school at CIMAT in Guanajuato Mexico, 2022.
- Co-organizer, ICERM Workshop, “D-modules, Group Actions, and Frobenius: Computing on Singularities” (with Christine Berkesch, Linquan Ma, Claudiu Raicu, and Uli Walther), Summer 2021
- Co-editor of Springer Volume “Women in Commutative Algebra - Proceedings of the 2019 WICA Workshop” (we put together a refereed volume of more than 400 pages), submitted/accepted in 2021, to appear in 2022.
- Member of a national external Review Panel, 2020-21.
- Organizer, Homotopical Algebra Reading Group, Summer 2020
- Co-organizer, ICERM Workshop, Summer 2020, “Free Resolutions and Representation Theory” (with Lars Christensen, Steven Sam, and Jerzy Weyman)
- Co-leader of a Research Group, Banff Women in Commutative Algebra (with Alexandra Seceleanu), Fall 2019
- Participant MSRI Summer Research for Women in Mathematics program, Summer 2019

- Co-organizer for Topology Day (inauguration of regional conference series with Menasco, Sikora, Wehrli, Zakharevich), SUNY at Buffalo, Sept 2017.
- Co-organizer for AMS Special Session on Algebraic Topology (with Zakharevich), SUNY at Buffalo, Sept 2017.
- Co-organizer for Route 81 Conference in Commutative Algebra and Algebraic Geometry, Syracuse University, Fall 2003, 2006, 2009, 2013, and 2016.
- Member of NSA Review Panel and/or external reviewer, multiple times.
- Co-organizer for AMS Special Session on Singularities - Algebraic and Analytic Aspects, Georgetown University, March 2015.
- Lecturer at “Computation of F-invariants Workshop”, Ann Arbor, May 2012.
- Lecturer at PASI workshop “Commutative algebra and its interactions with Algebraic Geometry, Representation Theory, and Physics”, Guanajuato, Mexico, May 2012.
- Co-organizer for Conference “Interactions between Commutative Algebra and Representation Theory”, Syracuse University, April 2012.
- Co-organizer for Special Session on Commutative Algebra and Algebraic Geometry, “40 Years and Counting: AWM’s Celebration of Women in Mathematics”, Brown University, September 2011.
- Co-organizer for AMS Special Session on Commutative Algebra and Algebraic Geometry, Syracuse University, October 2010.
- Co-organizer for Workshop on Commutative Algebra and its Interactions with Other Fields, Minnowbrook Center, Syracuse University, August 2005.
- Lecturer (3 one hour talks) in Joint Summer Research Conference on Commutative Algebra (Local Cohomology) at Snowbird, June 2005, lectures published jointly as a book.
- Lecturer (4 one hour talks) at VIGRE Mini-Course “Classical Problems in Commutative Algebra”, University of Utah, June 2004, notes available on their webpage.
- Referee for many journals.

Publications/Preprints:

1. *k Summands of syzygies over rings of positive Burch index via canonical resolutions*
(with M. DeBellevue),
submitted.
2. *Transferring algebra structures on complexes*
(with H. Rahmati),
Journal of Homotopy and Related Structures, to appear.
3. *Stable behavior of Frobenius powers over a general hypersurface*
(with H. Rahmati and R. R.G.),
Transactions of the AMS, to appear.
4. *Resolutions of differential operators of low order for an isolated hypersurface singularity*
(with R. Diethorn, J. Jeffries, N. Packauskas, J. Pollitz, H. Rahmati, S. Vassiliadou),
Michigan Math. Journal, to appear.
5. *Canonical Resolutions over Koszul Algebras*
(with E. Faber, M. Juhnke-Kubitzke, H. Lindo, R. R.G., A. Seceleanu),
Women in Commutative Algebra—Proceedings of the 2019 WICA Workshop, Assoc. Women Math. Ser., **29**
Springer, (2021) 281–301.

6. *(Co)torsion of exterior powers of differentials over complete intersections* (with S. Vassiliadou),
Journal of Singularities, **19** (2019), 131–162.
7. *Free resolutions of Artinian compressed algebras*, (with H. Rahmati),
Journal of Algebra, **497** (2018), 270–301.
8. *The residue field as a high syzygy*,
(with H. Rahmati and J. Striuli),
Communications in Algebra, **46** (2018), 2620–2630.
9. *Adams operations on matrix factorizations* (with M. K. Brown, P. Thompson, and M. E. Walker),
Algebra and Number Theory, **11** (2017), 2165–2192.
10. *Cyclic Adams operations* (with M. K. Brown, P. Thompson, and M. E. Walker),
Journal of Pure and Applied Algebra, special edition in honor of Ch. Weibel, **221** (2017), 1589–1613.
11. *Duality for Koszul homology over Gorenstein rings* (with H. Rahmati and J. Striuli),
Mathematische Zeitschrift, **276** (2014), 329–343.
12. *A direct limit for limit Hilbert-Kunz for smooth projective curves* (with H. Brenner and J. Li),
Journal of Algebra, **372** (2012), 488–504.
13. *On the (non)rigidity of the Frobenius endomorphism over Gorenstein rings* (with H. Dao and J. Li),
Algebra and Number Theory, **4** (2010), 1039–1053.
14. *Homology of perfect complexes* (with L. L. Avramov, R.-O. Buchweitz, and S. Iyengar),
Advances in Mathematics, **223** (2010), 1731–1781.
15. *A Riemann-Roch formula for the blow-up of a nonsingular affine scheme* (with C.-Y. J. Chan),
Journal of Algebra, **322** (2009), 3003–3025.
16. *24 Hours of Local Cohomology: the Snowbird Notes* (with S. Iyengar, G. Leuschke, A. Leykin, E. Miller,
A. Singh, and U. Walther),
book in the series AMS Graduate Studies in Mathematics **87** (2007).
17. *Homology over local homomorphisms* (with L. L. Avramov and S. Iyengar),
American Journal of Mathematics, **128** (2006), no. 1, 23–90.
18. *The Frobenius endomorphism and homological dimensions*,
Contemporary Mathematics **331** (2003), 207–234.
19. *Frobenius powers of complete intersections* (with L. L. Avramov),
Mathematical Research Letters, **8** (2001), 225–232.
20. *Mixed ladder determinantal varieties* (with N. Gonciulea),
Journal of Algebra, **231** (2000), 104–137.
21. *Intersection multiplicities over Gorenstein rings* (with A. Singh),
Mathematische Annalen, **317** (2000), 155–171.
22. *A Frobenius characterization of finite projective dimension over complete intersections*,
Mathematische Zeitschrift **233** (2000), 127–136.
23. *An explicit description of the Dennis trace map* (with R. Kantorovitz),
Communications in Algebra **28** (2000), 1429–1448.

24. *Recovering divisor classes via their (t) -adic filtrations*,
Journal of Pure and Applied Algebra **127** (1998), 257–271.
25. *Complexity of tensor products of modules and a theorem of Huneke-Wiegand*,
Proceedings of the American Mathematical Society **126** No. 1 (1998), 53–60.

PhD Students:

- Henry Potts-Rubin, current.
- Desiree Martin, current.
- Casey Necheles, PhD 2021 (joint with Wehrli).
- Mkrtich Ohanyan, PhD 2021 (joint with Briggs), industry.
- Rachel Gettinger, PhD 2020, hired by Yale University.
- Laura Ballard, PhD 2020.
- Eric Ottman, PhD 2019, hired by R.I.T.
- Kosmas Diveris, PhD 2012, hired by St. Olaf College.

Postdocs Mentored:

- Michael DeBellevue, current.
- Rebecca R.G., 2016-2018, hired by George Mason University.
- Hamid Rahmati, 2010-2012, hired by Miami University at Oxford, Ohio.
- Jinjia Li, 2006-2008, hired by University of Louisville.

Departmental Service and Local Outreach:

- Executive Committee + Hiring Committee, 2024-2025.
- Executive Committee + Hiring Committee, 2022-2023.
- Algebra Seminar Co-Organizer, 2022-present.
- Colloquium Co-Organizer, Spring 2016-present.
- Faculty Co-Mentor for Pi Mu Epsilon/Math Club, 2005-present (co-mentor with Kovalev since 2012)
- Faculty Advisor for AWM graduate student chapter at SU, 2018-present.
- Chair of Algebra Search Committee, Fall 2022.
- Co-creator and co-organizer of Academic Job Application Workshop for the graduate students and postdocs, Fall 2017-present.
- Executive Committee + Hiring Committee, 2021-2022.
- Hiring Committee, NTT calculus coordinator, Spring 2021.
- Graduate Committee 2020-2021.
- Executive Committee + Chair of Hiring Committee 2019-2020.
- Proposer of an Honors-like Calculus 1-credit add-on course (running currently)
- Proposer of mid-level Graduate Awards.
- Calculus Coordination Committee (CCC) 2015-2020.
- CCC Textbook Committee, 2019-2020
- Project Advance Faculty Advisor (overseeing a high school SU Calculus course)

- Organizer of Graduate Commutative Algebra Seminar, Spring 2015-2018.
- Chair of Hiring Committee, Fall 2017-Spring 2018.
- Chair of Algebra Search Committee, Fall 2017.
- 3rd Year Review Committee for Volterman
- Informal advising of various undergraduates
- Executive Committee + Hiring Committee 2016-2017.
- WISE Portfolio Evaluator 2014-present.
- Calculus II Supervisor, Fall 2016 and Fall 2015.
- Organizer of SWIM (Syracuse Women in Math), 2010-present
- Graduate Committee 2015-2016.
- Pre-tenure Review Committees, various.
- Second reader for Capstone Projects for Honors Program, 2012, 2015 (two).
- Executive Committee + Hiring Committee 2014-2015.
- Executive Committee + Hiring Committee 2013-2014.
- Ad-Hoc Hiring Committee, Fall 2013.
- Ad-Hoc Promotion Committee, 2013-2014.
- Chair of Hiring Committee, 2011-2012.
- Putnam Exam, began/resurrected our participation, 2011.
- Undergraduate Committee, 2009-2012.
- Advisor for postdoctoral associate Hamid Rahmati, 2010-2012.
- Member of various Ph.D. dissertation defense committees and Oral Exam committees, 2007-present.
- Independent study course for undergraduate student, Spring 2011.
- Advisor for a student's Capstone Project for Honors Program, 2009-2010.
- Hiring Committee (postdocs only this year), 2010-2011.
- Algebra Qualifying Exam for Ph.D. students, Jan 2009 and Aug 2010.
- Freshman Advisor, 2009-2010.
- Hiring Committee (and Ad-Hoc Topology Hiring Committee), 2009-2010.
- Executive Committee, 2006-2008.
- Advisor for postdoctoral associate Jinjia Li, 2006-2008.
- Algebra Preliminary Exam for Ph.D. students, Jan 2007.
- Ad-Hoc Committee on Standardizing the Syllabi for the MAT 295-296-397 Sequence, 2006.
- Undergraduate Committee, Syracuse University, 2004 - 2006.
- Independent study courses (with groups of students):
 - Spring 2010 (MAT 490 Advanced Reading: Topics in Algebra)
 - Spring 2008 (MAT 890 Advanced Seminar: Topics in Algebra)
 - Fall 2007 (MAT 890 Advanced Seminar: Topics in Algebra)
 - Spring 2006 (MAT 290 Fractals)
 - Spring 2005 (MAT 690 Algebraic Number Theory)
 - Spring 2004 (MAT 290 Fractals)

- Panel on Applying for Jobs in Academia, MGO conference, Syracuse University, April 2006.
- Involved with starting up Pi Mu Epsilon again at Syracuse, Fall 2004 - Spring 2005.
- Presenter at Kovalevsky Day Festival (two 80 minute math sessions for high school girls), Syracuse University, November 2004.

External Outreach:

- Plenary lecture “Intersection numbers in algebraic geometry”, Undergraduate Mathematics Symposium, University of Illinois at Chicago, Fall 2023
- SU Project Advance (visit to 3 high schools each semester to observe their Calculus III class and give an occasional math talk (e.g., fractals or Gauss-Bonnet Theorem)), Fall 2018-present.
- Math Club talk “Fract(ion)al Dimension, Syracuse University, Fall 2021
- Panelist for Fairfield University REU on Applying to Graduate School, Fall 2013.
- Colloquium for Undergraduates, Fairfield University, Spring 2012: “Fract(ion)al dimension”.
- Panelist at Nebraska Conference for Undergraduate Women in Mathematics, Feb. 2004.
- Colloquium for Undergraduates, Hope College, 1998: “Blowing Up Curves”.

Invited Conference Talks and Workshops:

- 2024 Apr MSRI/SLMath Workshop, Recent Developments in Commutative Algebra, Berkeley, CA: “tba”
- 2023 May Notre Dame MSRI graduate summer school, Colloquium: “DG algebra structures on resolutions”
- Apr AMS Special Session, University of Cincinnati: “Transferring algebra structures via homotopy equivalences”
- Feb MFO Workshop, Oberwolfach, Germany: “Differential operators of low order for an isolated hypersurface singularity”
- Jan AMS Special Session, JMM, Boston: “Resolutions of “most” commutative Artinian graded k -algebras”
- 2022 Oct KUMUNU, University of Nebraska: “Differential operators of low order for an isolated hypersurface singularity”
- Mar AMS Special Session, Purdue University: “Transferring algebra structures via homotopy equivalences”
- 2021 May AMS Special Session, San Francisco, CA: “DG algebra resolutions of quotients by weak complete intersection ideals”
- Mar AMS Special Session, Georgia Tech: “DG algebra resolutions of quotients by weak complete intersection ideals”
- 2020 Oct CIRM (Luminy, France) Workshop (*cancelled due to Covid*)
- Oct AMS Special Session, University of Tennessee: “Transferring dg-algebra structures”
- Aug DOCAS (Differential Operators in Commutative Algebra Seminar):
- May Midwest Topology Seminar, Wayne State University: (*cancelled due to Covid*)
- May AMS Special Session, Fresno, CA: “Transferring algebra structures on complexes” (*moved online due to Covid*)
- Apr AMS Special Session, Purdue University: (*2 sessions, both cancelled due to Covid*)
- Mar AMS Special Session, Boston, MA: (*cancelled due to Covid*)
- Mar AMS Special Session, Charlottesville, VA: “Transferring dg-algebra structures” (*moved online due to Covid*)
- 2019 Dec CMS Special Session, Toronto, ON: “Resolutions of compressed Artinian algebras”
- Nov AMS Special Session, Gainesville, FL: “Dg-algebra structures for compressed Artinian algebras”
- Oct AMS Special Session, Binghamton, NY: “Resolutions of compressed Artinian algebras”
- July RRAGE: Ragnar’s Ramifications in Algebra and Geometry Emerging, University of Toronto: “Dg-algebra structures for compressed Artinian algebras”
- June Conference on Commutative Algebra and its Interaction with Algebraic Geometry, Notre Dame University: “Betti numbers of the Frobenius powers of the maximal ideal over generic hypersurfaces in 3 variables”
- Apr Morgantown Algebra Days, West Virginia University : “Resolutions and dg-algebra structures for compressed Artinian algebras”

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| | Mar | AMS Special Session, Auburn, AL: “Resolutions and dg-algebra structures for compressed Artinian algebras” |
| | Feb | MFO Institute, Oberwolfach, Germany, invited, but did not speak |
| 2018 | Oct | AMS Special Session, San Francisco, CA: “Free resolutions of Artinian compressed algebras with application to Frobenius powers of an ideal” |
| | June | BIRS Institute Workshop, Banff, Canada: |
| | April | AMS Special Session, Boston, MA: “Free resolutions of Artinian compressed algebras” |
| 2017 | Oct | Workshop: Structures on Free Resolutions, Texas Tech University: “Generalized Koszul complexes and application to resolutions” |
| | April | AWM Special Session, Los Angeles, CA: “Cyclic Adams operations on matrix factorizations” |
| | Mar | AMS Special Session, Bloomington, IN: “Cyclic Adams operations on matrix factorizations” |
| 2016 | April | AMS Special Session, Salt Lake City: “Adams operations for matrix factorizations and a conjecture of Dao-Kurano” |
| | Mar | AMS Special Session, Athens, GA: “Adams operations for matrix factorizations and a conjecture of Dao-Kurano” |
| 2015 | Oct | AMS Special Session, Loyola, Chicago: “Adams operations for matrix factorizations and a conjecture of Dao-Kurano” |
| 2013 | June | Workshop in Luminy, France, invited, but could not attend |
| | Feb | Speaker at Homological Workshop at M.S.R.I. program, Berkeley |
| 2012 | Aug | Speaker at Introductory Workshop at M.S.R.I. program, Berkeley |
| | May | Computational Workshop on Frobenius Singularities and Invariants, Ann Arbor: “A direct limit for limit Hilbert-Kunz multiplicity for smooth projective curves” |
| | May | PASI Conference “Commutative Algebra and Its Interactions with...”, Guanajuato, Mexico: “Restrictions on modules of finite projective dimension” |
| | Mar | AMS Special Session, Lawrence: “Duality for Koszul homology” |
| 2011 | Oct | AMS Special Session, Salt Lake City: “Duality for Koszul homology over Gorenstein rings” |
| | April | KUMUNU Conference, Lincoln: “Duality for Koszul homology over Gorenstein rings” |
| 2010 | Dec | CMS Special Session, Vancouver: “Limit Hilbert-Kunz multiplicities” |
| 2009 | Mar | AMS Special Session, Urbana: “Simpler limit Hilbert-Kunz multiplicities” |
| 2008 | Sep | CIRM (Luminy, France) Workshop: Commutative Algebra and its Interactions with Algebraic Geometry |
| | July | Conference in Honor of Melvin Hochster, University of Michigan: Commutative Algebra: Connections with Algebraic Topology and Representation Theory: “Limit Hilbert-Kunz multiplicities” |
| | May | Conference in Honor of Luchezar Avramov, University of Nebraska: Commutative Algebra and its Interactions: “On the nonrigidity of the Frobenius endomorphism” |
| | Jan | AMS Joint Meeting, San Diego: “On nonrigidity of Frobenius” |

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| 2007 | June | BIRS (Banff, Canada) Workshop: Commutative Algebra and its Interaction with Algebraic Geometry |
| | Mar | AMS Special Session, Davidson: “A Riemann-Roch formula for the blow-up of a nonsingular affine scheme” |
| 2006 | Dec | CMS Meeting, Toronto: “A Riemann-Roch formula for the blow-up of a nonsingular affine scheme” |
| | May | CIRM (Luminy, France) Workshop: Commutative Algebra and its Interactions with Algebraic Geometry |
| 2005 | Sep | Conference in Honor of Phil Griffith, University of Illinois: “Hilbert polynomials over regular local rings via intersection theory on the blow-up” |
| | Aug | Minnowbrook Workshop on Commutative Algebra: “Hyperplane arrangements” |
| | June | Joint Summer Research Conference on Commutative Algebra, Snowbird UT: Three Lectures on Local Cohomology |
| | Apr | MFO (Oberwolfach, Germany) Workshop: Conference on Kommutative Algebra |
| 2004 | Dec | CMS Special Session, Montreal: “Extremal algebras” |
| | Nov | AMS Special Session, Nashville: “Extremal algebras” |
| | Sep | BIRS (Banff, Canada) Workshop: Commutative Algebra: Homological and Birational Theory |
| | May | AMS Special Session, Houston: “Extremal algebras” |
| 2003 | June | Workshop in Luminy, France, invited, but could not attend |
| | May | AMS Special Session, San Francisco State University: “Homological properties of the Frobenius endomorphism” |
| 2002 | Sep | KUMUNU Conference, University of Kansas: “Survey on methods of Koh and Lee” |
| | Mar | AMS Special Session, University of Michigan: “Frobenius and Multiplicities” |
| | Feb | Commutative Algebra Days Conference, University of Nebraska: “Frobenius and Multiplicities” |
| | Jan | AMS Special Session, San Diego: “Characteristic Zero Hilbert-Kunz Multiplicities” |
| 2001 | Oct | AMS Special Session, Williamstown: “Limit Hilbert-Kunz Multiplicities” |
| | June | Conference in Grenoble: “Frobenius powers of complete intersections” |
| | Mar | AMS Special Session, University of Kansas: “Frobenius powers of complete intersections” |
| 2000 | | AMS Special Session, New York City: “Frobenius powers of complete intersections” |
| 1999 | | AMS Special Session, Salt Lake City: “Mixed ladder determinantal varieties” |
| | | AMS Special Session, Urbana: “Intersection multiplicities over Gorenstein rings” |
| 1998 | | AMS Special Session, Baltimore: “Frobenius limits of finite length modules over complete intersection rings” |
| 1996 | | AMS Student Special Session, Seattle Mathfest: “Complexity of Tensor Products and a Theorem of Huneke-Wiegand. |
| | | AMS Special Session, Orlando: Divisor Class “Group of $A[[T]]$ and Lifting MCM Modules” |

Invited Seminars and Colloquia:

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| 2024 | Feb | UC Berkeley, Seminar on Commutative Algebra and Algebraic Geometry |
| 2023 | Oct | Auburn University, Commutative Algebra Seminar |
| | Oct | SUNY Albany, Algebra Seminar |
| 2022 | Apr | Northeastern University, Commutative Algebra Seminar |
| | Feb | University of Nebraska, Commutative Algebra Seminar |
| 2021 | Mar | Dalhousie University, Colloquium |
| 2021 | Feb | McMaster University, Algebra Seminar |
| 2020 | May | Cornell University, Colloquium (<i>cancelled due to Covid</i>) |
| 2019 | Mar | Purdue University, Commutative Algebra Seminar |
| | Feb | University of Nebraska, Commutative Algebra Seminar, 4 talks |
| 2018 | Oct | University of Utah, Commutative Algebra Seminar |
| 2017 | Mar/May | University of Illinois at Chicago, Commutative Algebra Seminar, 2 talks |
| | May | Creighton University, Colloquium |
| 2016 | Mar | Miami University at Oxford Ohio, Colloquium |
| 2012 | Dec | Georgetown University, Colloquium |
| | Oct | University of Nebraska, Commutative Algebra Seminar, 2 talks |
| 2009 | Nov | Yale University, Algebra and Lie Groups Seminar |
| | Apr | University of Illinois, Commutative Algebra Seminar |
| 2008 | Dec | University of Nebraska, Commutative Algebra Seminar |
| | Sep | CUNY, New York, Commutative Algebra Seminar |
| | Feb | University of Nebraska, Commutative Algebra Seminar |
| 2006 | Apr | University of Illinois, Commutative Algebra Seminar |
| 2005 | Feb | University of Utah, Commutative Algebra Seminar |
| 2004 | Nov | Cornell University, Commutative Algebra Seminar |
| | Feb | University of Nebraska, Commutative Algebra Seminar |
| 2003 | Jan | MSRI, Algebra Seminar |
| 2002 | Feb | New Mexico State University, Colloquium |
| | Jan | Syracuse University, Colloquium |
| 2000 | | University of Michigan, Commutative Algebra Seminar |
| 1999 | | University of Illinois, Commutative Algebra Seminar |
| | | University of Utah, Commutative Algebra Seminar |
| 1998 | | Hope College, Undergraduate Colloquium |
| 1997 | | University of Missouri, Commutative Algebra Seminar |

Teaching Experience:

- Courses taught at Syracuse University (2003-present):

** on leave Fall 2023–Spring 2024 **

Calculus III Plus (MAT 391), 1-credit reading/seminar course, Fall 2022

Rings and Modules (MAT 731), Fall 2022

Linear Algebra (MAT 331), two sections, Fall 2022

DG-algebra resolutions (MAT 690), graduate reading course, Fall 2022

Topics in Calculus III (MAT 290), 1-credit reading/seminar course, Fall 2021

Topics in Algebra: (Co)homology in algebraic geometry and algebra (MAT 830), Fall 2021

Linear Algebra (MAT 331), two sections, Fall 2021

Topics in Calculus III (MAT 200), 1-credit course, Fall 2020

Algebraic Geometry (MAT 738), Fall 2020

Linear Algebra (MAT 331), two sections, Fall 2020

Homological Algebra (MAT 732), Spring 2020

Senior Seminar (MAT 599), Spring 2020

Introduction to Abstract Mathematics (MAT 375), Fall 2019

** on leave Fall 2018–Spring 2019 **

Senior Seminar (MAT 599), Spring 2018

Introduction to Abstract Mathematics (MAT 375), Spring 2018

Commutative Algebra (MAT 733), Fall 2017

Calculus III (MAT 397), Fall 2017

Homological Algebra (MAT 732), Spring 2017

Calculus II (MAT 296), two sections, Fall 2016

Introduction to Algebra II (MAT 632), Spring 2016

Topics in Algebra (MAT 830), Fall 2015

Calculus II (MAT 296), two sections, Fall 2015

Homological Algebra (MAT 732), Spring 2015

Senior Seminar (MAT 599), Spring 2015

Matrix Algebra and Differential Equations (MAT 485), two sections, Fall 2014

Senior Seminar (MAT 599), Spring 2014

Rings and Modules (MAT 731), Fall 2013

Matrix Algebra and Differential Equations (MAT 485), two sections, Fall 2013

** on leave Fall 2012–Spring 2013 **

Senior Seminar (MAT 599), Spring 2012

Introduction to Abstract Algebra (MAT 534), Spring 2012

Rings and Modules (MAT 731), Fall 2011

Introduction to Real Analysis (MAT 512), Fall 2011

Algebraic Geometry (MAT 738), Spring 2011

Introduction to Real Analysis (MAT 512), Fall 2010

Linear Algebra (MAT 331), Fall 2010

Calculus II (MAT 296), Fall 2010

Introduction to Algebra II (MAT 632), Spring 2010

Elements of Modern Mathematics (MAT 183), Spring 2010

- Capstone Project (MAT 499), Spring 2010
- Calculus II (MAT 296), Fall 2009
- Differential Equations (MAT 514), Fall 2009
- ** on leave Fall 2008–Spring 2009 **
- Advanced Seminar (MAT 890), Spring 2008
- Advanced Linear Algebra (MAT 531), Spring 2008
- Introduction to Real Analysis (MAT 512), Spring 2008
- Advanced Seminar (MAT 890), Fall 2007
- Rings and Modules (MAT 731), Fall 2007
- Linear Algebra (MAT 331), Fall 2007
- Introduction to Real Analysis (MAT 512), Spring 2007
- Rings and Modules (MAT 731), Fall 2006
- Linear Algebra (MAT 331), Fall 2006
- Calculus I (MAT 295), Fall 2006
- Independent Study: Fractals (MAT 290), Spring 2006
- Differential Equations (MAT 514), Fall 2005
- Linear Algebra (MAT 331), two sections, Fall 2005
- Independent Study: Algebraic Number Theory (MAT 690), Spring 2004
- Applied Linear Algebra (MAT 532), Spring 2005
- Calculus I (MAT 295), Fall 2004
- Topics in Algebra (MAT 830), Fall 2004
- Group Theory (MAT 636), Spring 2004
- Independent Study: Fractals (MAT 290), Spring 2004
- Linear Algebra (MAT 331), two sections, Fall 2003
- Courses taught at the University of Nebraska (Fall 2002):
 - Linear Algebra (MATH 314), 2002
- Courses taught at the University of Toronto (2001-2002):
 - Differential Equations (MAT 244), 2002
 - Groups and Symmetries (undergraduate group theory) (MAT 301), 2001
 - Calculus (MAT 135), 2001-2002
- Courses taught at Michigan State University (2000-2001):
 - Differential Equations (MATH 235), 2001
 - Calculus (MATH 132), 2000
- Courses taught at the University of Michigan (1997-2000):
 - Topics in Commutative Algebra (MATH 615), 2000
 - Graduate Commutative Algebra I (MATH 614), 1998
 - Linear Algebra for Engineers (MATH 417), 1998, 1999
 - Linear Algebra for Engineers (MATH 419), 1998
 - Honors Calculus (MATH 176), 2000
 - Calculus (MATH 115, 116), 1997-1999