

Benjamin Drabkin

1535 F Street, Box 10
Lincoln, Nebraska 68508

Email: benjamin.drabkin@huskers.unl.edu

EDUCATION

- **PhD in Mathematics**

University of Nebraska-Lincoln, Lincoln, NE, expected August 2020.

Thesis Title: *Symbolic Powers in Algebra and Geometry*

Advisor: Alexandra Seceleanu

- **Masters of Arts, Mathematics**

University of Nebraska-Lincoln, Lincoln, NE, May 2016.

- **Bachelor of Arts, Mathematics**

Grinnell College, Grinnell, IA, May 2014.

RESEARCH INTERESTS

Commutative algebra and algebraic geometry with focus on symbolic powers of ideals, hyperplane arrangements, and connections to combinatorics.

HONORS AND AWARDS

- **G.C. Young and W.H. Young Award 2017-2018**

Awarded by the UNL Department of Mathematics

Awarded annually to 1-2 graduate students for excellence in research.

- **Outstanding First Year Student Award 2015-2016**

Awarded by the UNL Department of Mathematics

PUBLICATIONS

- *Containment-tight ideals from singular loci of reflection arrangements* (with A. Seceleanu), in preparation.

- *On quasi-equiogenerated and Freiman cover ideals of graphs* (with L. Guerrieri), preprint, (2019) [arXiv:1909.07175](https://arxiv.org/abs/1909.07175).

- *Asymptotic invariants of ideals with Noetherian symbolic Rees algebra and applications to cover ideals* (with L. Guerrieri), *Journal of Pure and Applied Algebra*, vol. 224, Issue 1, January 2020, pgs 300-319, [arXiv:1802.01884](https://arxiv.org/abs/1802.01884).

- *Calculations involving symbolic powers* (with E. Grifo, A. Seceleanu, B. Stone), *Journal of Software for Algebra and Geometry*, vol. 9, no.1 (2019), 101109, [arXiv:1712.01440](https://arxiv.org/abs/1712.01440).

- *Configurations of Linear Spaces of Codimension Two and the Containment Problem*, preprint, 2017, [arXiv:1704.07870](https://arxiv.org/abs/1704.07870).

- *On a Class of Non-Commutative Imprimitive Association Schemes of Order 6* (with C. French) *Communications in Algebra* (2015) vol 43, issue 9, 4008–4041.

**TEACHING
EXPERIENCE**

Courses taught as instructor of record:

MATH 314 Linear Algebra	Spring 2018
MATH 107 Calculus II	Summer 2019
MATH 302 Math Modeling (course for future elementary educators)	Fall 2017
MATH 203 Contemporary Math	Spring 2017
MATH 104 Business Calculus	Summer 2016
MATH 103 College Algebra and Trigonometry	Fall 2018, Fall 2019
MATH 101 College Algebra	Spring 2016, Fall 2016
MATH 100A Intermediate Algebra	Fall 2015

Courses taught as a teaching assistant:

MATH 106 Calculus I (recitation section)	5 times
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Teaching development:

Successfully completed a year long academic course on
Teaching and Learning Mathematics at the Post-Secondary Level, 2015.

**INVITED
TALKS**

- *Containment-tight ideals from singular loci of reflection arrangements*
MS Joint Mathematics Meetings, Special session on Commutative Algebra,
March 2020
- *Symbolic defect and cover ideals*
KUMUNU Jr. 2019, University of Nebraska-Lincoln
March 2019
- *Symbolic defect for ideals with Noetherian symbolic Rees algebra*
AMS Sectional Meeting, Auburn,
Special Session: Combinatorial and Commutative Algebra,
March 2019
- *Symbolic power containment in hyperplane arrangements*
AMS Joint Mathematics Meetings, Special session: Recent Advances
in Homological and Commutative Algebra,
January 2019.
- *Symbolic defect for ideals with Noetherian symbolic Rees algebra*
Canadian Mathematical Society Winter Meetings,
Special Session: Symbolic and Regular Powers of Ideals,
December 2018.

POSTERS

- *Symbolic Defect and Cover Ideals*
KUMUNU
University of Kansas, October 2017, October 2018.
S.L.A.M.
University of Texas at El Paso, February 2019.

Commutative Algebra and its Interaction with Algebraic Geometry,
University of Notre Dame, July 2019.

LOCAL TALKS

- *Combinatorics and commutative algebra*
Commutative Algebra Reading Seminar, UNL Fall 2019.
- *Cover ideals and the Freiman Property*
Commutative Algebra Seminar, UNL Fall 2019.
- *Growth of the Symbolic Defect*
Commutative Algebra Seminar, UNL Spring 2019.
- *Hilbert's 14th problem and the Nagata Conjecture*
Topics in Algebra, UNL Fall 2018.
- *Symbolic power containment in hyperplane arrangements (2 talks)*
Commutative Algebra Seminar, UNL Fall 2018.
- *An introduction to Hyperplane Arrangements*
Commutative Algebra Reading Seminar, UNL Fall 2018.
- *Birational Geometry and Symbolic Powers (2 talks, with E. Canton)*
Commutative Algebra Reading Seminar, UNL Spring 2018.
- *Symbolic Powers: Questions, answers, and more questions*
Commutative Algebra Reading Seminar, UNL Fall 2017.
- *Symbolic Powers: A gentle introduction*
Commutative Algebra Reading Seminar, UNL Fall 2017.
- *Symbolic powers and the containment problem*
Commutative Algebra Reading Seminar, UNL Spring 2017.
- *Every algebraic set in n -space is the intersection of n hypersurfaces*
Commutative Algebra Reading Seminar, UNL Fall 2016.

WORKSHOPS, SUMMER SCHOOLS & CONFERENCES ATTENDED

- *Conference on Commutative Algebra and its Interaction with Algebraic Geometry*
Conference, University of Notre Dame, June 16-21, 2019.
- *MSRI Graduate Summer School and Macaulay2 Workshop*
Summer School, University of Notre Dame, June 3-14, 2019.
- *AMS Sectional Meeting, Auburn. Special Session: Combinatorial and Commutative Algebra*
Conference, Auburn University, March 15-17, 2019.
- *AMS Joint Meetings, Special Session: Recent Advances in Homological and Commutative Algebra*
Conference, Baltimore, January 16-19, 2019
- *AMS Short Course: Sum of Squares: Theory and Applications*
Conference, Baltimore, January 14-15, 2019
- *Southwest Local Algebra Meeting*
Conference, University of Texas at El Paso, February 23-24, 2019.

- *CMS Winter meetings, Special Session: Symbolic and Regular Powers of Ideals*,
Conference, Vancouver, Canada, December 7-10, 2018.
- *Commutative Algebra and Representation Theory*
Conference, Tulane University, November 8-10, 2018.
- *RTG Workshop: Topics in Commutative Algebra*
Summer School, University of Utah, May 7–11, 2018.
- *Stillman’s Conjecture and other Progress on Free Resolutions*
Macaulay 2 workshop, U.C. Berkeley, July 19–21, 2017.
- *P.R.A.G.M.A.T.I.C. 2017: Powers of ideals and ideals of powers*
Summer School, Università di Catania, Italy, June 19–July 7, 2017.
- KUMUNU
Conference, University of Kansas, October 2016, 2017, 2018.
Conference, University of Nebraska - Lincoln, October 2019.
- KUMUNU Jr.
Conference, University of Nebraska - Lincoln, April 2017, 2018.

**ORGANIZATION
& SERVICE
ACTIVITIES**

- Co-organizer of the Commutative Algebra Reading Seminar, UNL, Spring 2018–Spring 2019.
- Co-organizer of the graduate student conference KUMUNU Jr, 2018.
- Volunteer for the UNL Math Day contest for high school students, 2014–2019.
- Counselor at the UNL Math Resource Center, 2014–2019.