

# Zachary Nason

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## EDUCATION

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**B.S., Mathematics** 2020  
*University of Kansas, Lawrence, KS*

**M.S., Mathematics** 2023  
*University of Nebraska-Lincoln, Lincoln, NE*

**Ph.D., Mathematics** Expected May 2026  
*University of Nebraska-Lincoln, Lincoln, NE*  
*Advisor: Thomas Marley*

## POSITIONS HELD

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**Graduate Teaching Assistant** August 2021 - Present  
*Mathematics Department, University of Nebraska-Lincoln*

**Research Training Group in the Mathematical Sciences (RTG) Graduate Trainee** Fall 2024  
*Mathematics Department, University of Nebraska-Lincoln*

## AWARDS

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**Outstanding Qualifying Exam** 2022  
*This award is given by the UNL Mathematics Department to two graduate students who have achieved the highest scores on the Ph.D. qualifying exams for that year.*

## PUBLICATIONS/PREPRINTS

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Nason, Zachary (Apr. 2025). "Maximal Cohen-Macaulay DG-Complexes". Accessible at <https://arxiv.org/abs/2503.23117>. Currently under review at the Journal of Pure and Applied Algebra.

## TALKS AND PRESENTATIONS

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### NON-UNL PRESENTATIONS

1. **Maximal Cohen-Macaulay DG-Complexes and a Derived Improved New Intersection Theorem** (20 min) March 29, 2025  
*University of Kansas, AMS Spring Central Sectional 2025*  
*Special Session on Topics in Commutative Algebra*

### UNL PRESENTATIONS

9. **Journeying towards Jensen's Theorem** (3 talks, 50 min each) July 21, 23, and 25, 2025  
*University of Nebraska-Lincoln, Summer Commutative Algebra Reading Seminar*
8. **Maximal Cohen-Macaulay DG-Modules** (50 min) November 20, 2024  
*University of Nebraska-Lincoln, Commutative Algebra Seminar*

7. **Maximal Cohen-Macaulay Complexes and an Extension to Differential Graded Rings** (50 min) September 25, 2024  
*University of Nebraska-Lincoln, Commutative Algebra Reading Seminar*
6. **Constructing the Derived Category** (3 talks, 50 min each) July 29, 31, and August 2, 2024  
*University of Nebraska-Lincoln, Summer Commutative Algebra Reading Seminar*
5. **Cohen-Macaulay Differential Graded Algebras** (50 min) May 1, 2024  
*University of Nebraska-Lincoln, Commutative Algebra Reading Seminar*
4. **Gorenstein Differential Graded Algebras** (50 min) October 19, 2023  
*University of Nebraska-Lincoln, Commutative Algebra Reading Seminar*
3. **Characterizing Gorenstein Local Rings Using the Frobenius Map** (50 min) April 19, 2023  
*University of Nebraska-Lincoln, Commutative Algebra Reading Seminar*
2. **Symbolic Powers and Monomial Ideals** (50 min) November 16, 2022  
*University of Nebraska-Lincoln, Commutative Algebra Reading Seminar*
1. **A Counterexample Concerning the Existence of Height One Prime Ideals in the Intersection of Height Two Prime Ideals** (50 min) February 9, 2022  
*University of Nebraska-Lincoln, Commutative Algebra Reading Seminar*

## CONFERENCES ATTENDED

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- Summer CAMP August 2025  
*University of Nebraska-Lincoln*
- Modules and Rings: Recent Developments in Commutative Algebra June 2025  
*University of Genova*
- URiCA May 2025  
*University of Nebraska-Lincoln*
- RayFest April 2025  
*University of Nebraska-Lincoln*
- AMS Spring 2025 Central Sectional Meeting March 2025  
*University of Kansas*
- Commutative Algebra in Mixed Characteristic March 2025  
*University of Nebraska-Lincoln*
- CA+ 2025 March 2025  
*Iowa State University*
- KUMUNU September 2024  
*University of Missouri*
- URiCA May 2024  
*University of Nebraska-Lincoln*
- KUMUNU October 2023  
*University of Missouri*
- AMS Fall 2023 Central Sectional Meeting September 2023  
*Creighton University*
- BrianFest August 2023  
*University of Nebraska-Lincoln*

- URiCA May 2023  
*University of Nebraska-Lincoln*
- Morgantown Algebra Days April 2023  
*West Virginia University*
- Math 125 April 2023  
*University of Nebraska-Lincoln*
- KUMUNU October 2022  
*University of Nebraska-Lincoln*

## TEACHING

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**Instructor of Record** Fall 2025  
MATH 103: *College Algebra and Trigonometry*

**Instructor of Record** Spring 2025  
MATH 107WHT: *Calculus II - William H. Thompson Scholars Section*

**Instructor of Record** Summer 2024  
MATH 208: *Calculus III*

**Instructor of Record** Spring 2024  
MATH 104: *Applied Calculus*

**Instructor of Record** Fall 2023  
MATH 103: *College Algebra and Trigonometry*

**Grading Assignment** Fall 2023  
MATH 825: *Mathematical Analysis I*

**Instructor of Record** Summer 2023  
MATH 107: *Calculus II*

**Recitation Instructor** Spring 2023 (3 sections)  
MATH 208: *Calculus III*

**Instructor of Record** Fall 2022  
MATH 101: *College Algebra*

**Recitation Instructor** Spring 2022 (2 sections), Summer 2022 (1 section)  
MATH 107: *Calculus II*

**Recitation Instructor** Fall 2021  
MATH 106: *Calculus I*

**Tutoring** Fall 2021-Present  
Drop-in math tutoring center for UNL first-year undergraduates. Tutored for two hours per week, one semester per year.

## SERVICE

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**Commutative Algebra Reading Seminar Co-Organizer** 2025-Present  
*University of Nebraska-Lincoln*  
Organized and led a weekly graduate student seminar in commutative algebra along with two other graduate students.

**UNL DRP Mentor** 2024-2025  
*University of Nebraska-Lincoln*  
Mentored an advanced undergraduate student in basic commutative algebra and planar algebraic geometry, with the eventual goal of proving Bezout's Theorem for projective curves in projective 2-space

**UNL Graduate Mentor**

2023-2024

*University of Nebraska-Lincoln*

Mentored a beginning mathematics graduate student during his first year of graduate school. Advised and helped the first-year graduate students with navigating academic life and with adjusting to Lincoln.

**UNL Math Day Volunteer**

2021-Present

*University of Nebraska-Lincoln*

The mathematics department at the University of Nebraska-Lincoln holds an annual math day for high school students in Nebraska. Students compete in a math bowl and participate in mathematical activities and puzzle-solving.

## COMPUTER SKILLS

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**Languages:** Java, Python, C++

**Software:** L<sup>A</sup>T<sub>E</sub>X, Macaulay2, MATLAB, Microsoft Office, Google Workspace