

Zachary Nason

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EDUCATION

B.S., Mathematics

University of Kansas, Lawrence, KS

2020

M.S., Mathematics

University of Nebraska-Lincoln, Lincoln, NE

2023

Ph.D., Mathematics

University of Nebraska-Lincoln, Lincoln, NE

Advisor: Thomas Marley

Expected May 2026

POSITIONS HELD

Graduate Teaching Assistant

Mathematics Department, University of Nebraska-Lincoln

August 2021 - Present

Research Training Group in the Mathematical Sciences (RTG) Graduate Trainee

Mathematics Department, University of Nebraska-Lincoln

Fall 2024

AWARDS

Emeritus Faculty Fellowship - Lloyd Jackson Award

This award is given by the UNL Mathematics Department to graduate students to recognize notable scholarship and to promote future mathematical research. This award is named after UNL emeritus professor Lloyd Jackson

2025

Outstanding Qualifying Exam

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.

2022

PUBLICATIONS/PREPRINTS

- [1] Paulo Martins, Victor D. Mendoza Rubio, and Zachary Nason, *Finiteness of complete intersection dimensions of $R\text{Hom}$ and Ext modules*, Accessible at <https://arxiv.org/abs/2601.07811>, January 2026.
- [2] Zachary Nason, *Level inequalities for complexes*, Accessible at <https://arxiv.org/abs/2510.15230>. Currently under review at Proceedings of the American Mathematical Society, October 2025.
- [3] _____, *Maximal Cohen-Macaulay DG-complexes*, Accessible at <https://arxiv.org/abs/2503.23117>. Accepted in January 2026 at Journal of Pure and Applied Algebra, April 2025.

TALKS AND PRESENTATIONS

NON-UNL PRESENTATIONS

2. **Level Inequalities for Complexes** (50 min)
Syracuse University, Algebra Seminar

January 30, 2026

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*

- Invited to give seminar presentations at University of Texas-Rio Grande and Texas Tech University in Spring 2026

UNL PRESENTATIONS

10. **Level Inequalities for Complexes** (50 min)

University of Nebraska-Lincoln, Commutative Algebra Seminar

December 3, 2025

9. **Journeying towards Jensen's Theorem** (3 talks, 50 min each)

University of Nebraska-Lincoln, Summer Commutative Algebra Reading Seminar

July 21, 23, and 25, 2025

8. **Maximal Cohen-Macaulay DG-Modules** (50 min)

University of Nebraska-Lincoln, Commutative Algebra Seminar

November 20, 2024

7. **Maximal Cohen-Macaulay Complexes and an Extension to Differential Graded Rings** (50 min)

University of Nebraska-Lincoln, Commutative Algebra Reading Seminar

September 25, 2024

6. **Constructing the Derived Category** (3 talks, 50 min each)

University of Nebraska-Lincoln, Summer Commutative Algebra Reading Seminar

July 29, 31, and August 2, 2024

5. **Cohen-Macaulay Differential Graded Algebras** (50 min)

University of Nebraska-Lincoln, Commutative Algebra Reading Seminar

May 1, 2024

4. **Gorenstein Differential Graded Algebras** (50 min)

University of Nebraska-Lincoln, Commutative Algebra Reading Seminar

October 19, 2023

3. **Characterizing Gorenstein Local Rings Using the Frobenius Map** (50 min)

University of Nebraska-Lincoln, Commutative Algebra Reading Seminar

April 19, 2023

2. **Symbolic Powers and Monomial Ideals** (50 min)

University of Nebraska-Lincoln, Commutative Algebra Reading Seminar

November 16, 2022

1. **A Counterexample Concerning the Existence of Height One**

Prime Ideals in the Intersection of Height Two Prime Ideals (50 min)

University of Nebraska-Lincoln, Commutative Algebra Reading Seminar

February 9, 2022

CONFERENCES ATTENDED

• KUMUNU

University of Missouri

October 2025

• AMS Fall 2025 Southeastern Sectional Meeting

Tulane University

October 2025

• Summer CAMP

University of Nebraska-Lincoln

August 2025

• Modules and Rings: Recent Developments in Commutative Algebra

University of Genova

June 2025

• URiCA

University of Nebraska-Lincoln

May 2025

- RayFest
University of Nebraska-Lincoln April 2025
- AMS Spring 2025 Central Sectional Meeting
University of Kansas March 2025
- Commutative Algebra in Mixed Characteristic
University of Nebraska-Lincoln March 2025
- CA+ 2025
Iowa State University March 2025
- KUMUNU
University of Missouri September 2024
- URiCA
University of Nebraska-Lincoln May 2024
- KUMUNU
University of Missouri October 2023
- AMS Fall 2023 Central Sectional Meeting
Creighton University September 2023
- BrianFest
University of Nebraska-Lincoln August 2023
- URiCA
University of Nebraska-Lincoln May 2023
- Morgantown Algebra Days
West Virginia University April 2023
- Math 125
University of Nebraska-Lincoln April 2023
- KUMUNU
University of Nebraska-Lincoln October 2022

TEACHING

- Recitation Instructor**
MATH 221: *Differential Equations* Spring 2026 (2 sections)
- Instructor of Record**
MATH 103: *College Algebra and Trigonometry* Fall 2025
- Instructor of Record**
MATH 107WHT: *Calculus II - William H. Thompson Scholars Section* Spring 2025
- Instructor of Record**
MATH 208: *Calculus III* Summer 2024
- Instructor of Record**
MATH 104: *Applied Calculus* Spring 2024
- Instructor of Record**
MATH 103: *College Algebra and Trigonometry* Fall 2023
- Grading Assignment**
MATH 825: *Mathematical Analysis I* Fall 2023

Instructor of Record MATH 107: <i>Calculus II</i>	Summer 2023
Algebra Qualifying Exam Review Session Organizer Organized and led the review session for UNL's algebra qualifying exam.	Summer 2023
Recitation Instructor MATH 208: <i>Calculus III</i>	Spring 2023 (3 sections)
Instructor of Record MATH 101: <i>College Algebra</i>	Fall 2022
Recitation Instructor MATH 107: <i>Calculus II</i>	Spring 2022 (2 sections), Summer 2022 (1 section)
Recitation Instructor MATH 106: <i>Calculus I</i>	Fall 2021
Tutoring Drop-in math tutoring center for UNL first-year undergraduates. Tutored for two hours per week, one semester per year.	Fall 2021-Present

SERVICE

Commutative Algebra Reading Seminar Co-Organizer <i>University of Nebraska-Lincoln</i>	2025-Present
Organized and led a weekly graduate student seminar in commutative algebra along with two other graduate students.	
UNL DRP Mentor <i>University of Nebraska-Lincoln</i>	2024-2025
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 <i>University of Nebraska-Lincoln</i>	2023-2024
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 <i>University of Nebraska-Lincoln</i>	2021-Present
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

Languages: Java, Python, C++
 Software: L^AT_EX, Macaulay2, MATLAB, Microsoft Office, Google Workspace