

# Sara Mueller

Department of Mathematics  
University of Nebraska – Lincoln  
232 Avery Hall

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in LinkedIn

## EDUCATION

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- **Doctor of Philosophy, Mathematics** *Expected 2026*  
*University of Nebraska – Lincoln*  
*Advised by Tom Marley*
- **Masters of Science, Mathematics** *May 2023*  
*University of Nebraska – Lincoln*
- **Bachelor of Arts in Mathematics, Cum Laude** *May 2021*  
*Wellesley College*

## RELEVANT COURSEWORK

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- **Commutative Algebra I, Homological Algebra, Commutative Algebra II, Algebraic Geometry, Toric Geometry**
- *Reading Courses in:* **Galois Theory and Local Cohomology**

## POSITIONS HELD

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- **Graduate Teaching Assistant** *Aug. 2021 -*  
*University of Nebraska – Lincoln*
- **Graduate Research Assistant** *Summers 2023, 2024*  
*University of Nebraska – Lincoln*
  - Worked in Github, Webwork, and VSCode to make updates to online resources and course packets for first year mathematics courses
  - Designed course materials for undergraduate preparatory course for incoming engineering students.

## TEACHING EXPERIENCE

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- **Associate Convener**

**Math 100A: Intermediate Algebra**, *University of Nebraska – Lincoln*  
Fall 2024 - Spring 2025

**Math Resource Center and Learning Assistant**, *University of Nebraska – Lincoln*  
Fall 2023 - Spring 2024

Worked with MRC and LA directors, was responsible for designing schedule, and served as first point of contact for MRC and LA issue with graduate and undergraduate students

- **Instructor of Record**

**Math 100A: Intermediate Algebra**, *University of Nebraska – Lincoln*  
Spring 2022, Fall 2024, Spring 2025

**Math 101: College Algebra**, *University of Nebraska – Lincoln*  
Fall 2021

**Math 101C: College Algebra Co-requisite**, *University of Nebraska – Lincoln*  
Fall 2023

**Math 309: Introduction to Proof Writing**, *University of Nebraska – Lincoln*  
Summer 2025

- **Recitation/Lab Instructor**

**Math 106: Calculus I**, *University of Nebraska – Lincoln*  
Fall 2020

**Math 107: Calculus II**, *University of Nebraska – Lincoln*  
Spring 2021, Summer 2021

**Math 221: Differential Equations**, *University of Nebraska – Lincoln*  
Spring 2024

**Math 435: Math in the City**, *University of Nebraska – Lincoln*  
Spring 2024

## SKILLS

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**Programming Experience in:** Macaulay2, MatLab, C++, Python  
**Typesetting Languages:** L<sup>A</sup>T<sub>E</sub>X, PG (Perl-based)

## AWARDS

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- **Don Miller Outstanding GTA Award** *Fall 2023 – Spring 2024*

## RESEARCH EXPERIENCE

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- **Graduate Research** *Fall 2024 –*  
Currently studying Gorenstein homological dimension in the derived category
- **Undergraduate Research** *Fall 2020 – Spring 2021*  
*Thesis Project in Schur Polynomials in 6 Vertex Lattice Models*  
Analyzing patterns in ice-type models with fewer paths than variables to determine a formula for representing these models as a combination of Schur polynomials

## LEADERSHIP, SERVICE, AND VOLUNTEER ROLES

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- **NCUWM Organizing Committee**, Member *2024-*  
The Nebraska Conference for Undergraduate Women in Mathematics is an annual mentorship and career event aimed at undergraduate women in mathematics. Panels, presentations, and networking opportunities are set up to encourage women towards mathematics-oriented graduate programs and career paths. My role as a member of the organizing committee involves participation in weekly planning meetings, coordinating volunteer participation, and managing the conference's social media accounts.
- **NCUWM**, Volunteer *2023-2025*  
As a volunteer at the Nebraska Conference for Undergraduate Women in Mathematics, I have served in various capacities during the conference, assisting as needed with set-up, clean-up, and organization, as well as advising and mentoring conference attendees.
- **UNL Math Day**, Volunteer *2022 - 2024*  
Math Day is an annual event designed to increase Nebraska high school students' enthusiastic participation in mathematics. As a volunteer, I helped facilitate competitions and program events.
- **Association for Women in Mathematics**, Graduate Student Mentor *2024-2025*  
I act as Graduate Student Mentor to University of Nebraska Lincoln's AWM Chapter, attending weekly meetings, assisting with planning and organizing events, and helping to foster an inclusive community for women mathematics students on campus.
- **First Year Graduate Student Mentor** *2023-2025*  
I act as a mentor to incoming first-year graduate students, meeting regularly with one new student each year to help ease their transition into the program.
- **UNL Math Circle** *2023-2024*  
Math Circle is a community outreach program coordinated with regional schools designed to bring fun and engaging math-related programming and activities to local elementary, middle, and high-school students. As a volunteer, I helped to design and lead after-school activities for several different age groups of students.
- **Girls Inc.**, Instructor *2024*  
Girls Inc. is an organization which seeks to support girls and young women by building confidence, strength, and knowledge through girl-focused summer camp programming. As an instructor, I planned and taught lessons and activities focused around fun, real-world applications of mathematics, including tessellations and encryption, culminating in a math-focused escape room challenge.

## TALKS

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- **Great Plains Alliance** Wayne State College, Wayne, NE *March 2024*
  - Gave talk on  $p$ -adics to undergraduate math students
- **Commutative Algebra Research Seminar** University of Nebraska-Lincoln *February 2025*
  - Titled “Totally Reflexive Modules and G-dimension”, this talk gave an introduction to this homological dimension, through examples and proofs, as well as some open problems associated to the subject