

JULIANN GERACI

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Department of Mathematics ◊ University of Nebraska - Lincoln

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EDUCATION

Doctor of Philosophy , Mathematics <i>University of Nebraska-Lincoln, Lincoln, NE</i>	Expected May 2026
Master of Science , Mathematics <i>University of Nebraska-Lincoln, Lincoln, NE</i>	December 2021
Bachelor of Arts , Mathematics <i>State Univeresity of New York at Oswego, Oswego, NY</i>	May 2020

POSITIONS HELD

Graduate Teaching Assistant <i>Mathematics Department, University of Nebraska- Lincoln</i>	August 2020 -
Graduate Research Assistant <i>Center for Science, Mathematics and Computer Education, University of Nebraska- Lincoln</i> Worked on the AIR@NE project, an NSF-funded grant that examines the adaptation and implementation of a validated K-8 Computer Science curriculum in diverse school districts.	June 2021 - August 2021, June 2023-August 2023
NSF Graduate Student Mentor <i>The Polymath Jr Program, City University of New York</i>	June 2023 - August 2023
NSF Research Assistant <i>REU, East Tennessee State University, Johnson City, TN</i>	June 2019- August 2019

PUBLICATIONS

1. *Products and powers of principal symmetric ideals* (with E. Dannetun, B. Fang, R. Formenti, B. Gao, R. Kogel, Y. Li, S. Mandal, V. Rupasinghe, A.Secleanu, D. Tran, N.Walker), *Journal of Algebra and Its Applications*, in press.
2. *Graphical Universal Cycles of Combinatorial Objects* (with A. Cantwell, A. Godbole, and C. Padilla), *Advances in Applied Mathematics*, Volume 127, June 2021, 102166

TALKS AND PRESENTATIONS

11. How Algebra Can Help Prevent Theft (30 min) <i>University of Nebraska-Lincoln, Commutative Algebra Seminar</i>	September 12, 2024
10. Boolean matrix rank and Castlenuovo-Mumford regularity (Poster) <i>University of Notre Dame, UweFest</i>	August 15, 2024
9. Simplicial Resolutions and the Scarf Complex (50 min) <i>University of Nebraska-Lincoln, Commutative Algebra Seminar</i>	September 20, 2023

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| 8. Monomial Resolutions (50 min.)
<i>University of Nebraska-Lincoln, Commutative Algebra Reading Seminar</i> | April 26, 2023 |
| 7. Introduction to Neural Codes, Rings, and Ideals (25 min.)
<i>Dordt College, Great Plains Alliance Series</i> | March 14, 2023 |
| 6. Neural Rings and Ideals (50 min.)
<i>Online, Commutative Algebra Regional Expository Seminar</i> | December 5, 2022 |
| 5. Neural Rings and Ideals (50 min.)
<i>University of Nebraska-Lincoln, Commutative Algebra Reading Seminar</i> | November 30, 2022 |
| 4. A Path to Resolutions (20 min.)
<i>University of Nebraska-Lincoln, Commutative Algebra Reading Seminar</i> | August 31, 2022 |
| 3. Gröbner Bases II (50 min.)
<i>University of Nebraska-Lincoln, Commutative Algebra Reading Seminar</i> | March 9, 2022 |
| 2. Gröbner Bases I (50 min.)
<i>University of Nebraska-Lincoln, Commutative Algebra Reading Seminar</i> | March 2, 2022 |
| 1. Construction of Free Resolutions Through Simplicial Complexes (50 min.)
<i>University of Nebraska-Lincoln, Commutative Algebra Reading Seminar</i> | October 6, 2021 |

CONFERENCES/WORKSHOPS ATTENDED

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| • UweFest
<i>University of Notre Dame</i> | August 2024 |
| • Advanced Studies Institute in Mathematics of
Data Science & Machine Learning
<i>Urgench State University (Uzbekistan)</i> | January 2024 |
| • Neural Coding and Combinatorics
<i>ICERM</i> | October 2023 |
| • KUMUNU
<i>University of Missouri</i> | September 2023 |
| • Macaulay2 Workshop and Mini School
<i>University of Minnesota</i> | June 2023 |
| • SLMath/CMND Summer School
<i>University of Notre Dame</i> | May 2023 |
| • URiCA
<i>University of Nebraska-Lincoln</i> | May 2023 |
| • Math 125
<i>University of Nebraska-Lincoln</i> | April 2023 |
| • KUMUNU
<i>University of Nebraska-Lincoln</i> | October 2022 |
| • BRIDGES (Building Relationships for an Inclusive and Diverse Group of Emerging Students)
<i>University of Utah</i> | June 2022 |
| • CA+
<i>Iowa State University</i> | May 2022 |

TEACHING EXPERIENCE

Associate Convener

- Math 100A: *Intermediate Algebra* Fall 2022, Spring 2023

Instructor of Record

- Math 300: *Mathematics Matters* Spring 2024
- Math 100A: *Intermediate Algebra* Fall 2021, Spring 2022, Fall 2022, Spring 2023

Recitation Instructor

- Math 106: *Calculus I Recitation* Fall 2020, Spring 2021 (2 sections), Summer 2021 (1 section), Fall 2023 (3 sections)

Teaching Assistant

- Math 812T: *Geometry for Geometry Teachers* Summer 2022

Curriculum Development

- Course Repository Summer 2024
Established a new repository dedicated to course information will facilitate efficient communication and centralized access for instructors.
- Math 101C: *College Algebra Corequisite* Summer 2022

Tutoring

- UNL Math Resource Center Fall 2020-
Drop-in tutoring center for students in general mathematics courses. Tutored two hours per week, one semester per year.

Grading Assignments

- Math 415/815: *Theory of Linear Transformations* Spring 2023

AWARDS

Don Miller Outstanding Teaching by a Graduate Student 2022

University of Nebraska - Lincoln

The Mathematics Department places a very high value on quality teaching, and since 1991 has honored outstanding teaching by a graduate teaching assistant with a cash award.

PROFESSIONAL DEVELOPMENT

Commutative Algebra Market Preparation workshop August 2023

University of Nebraska-Lincoln

Graduate Student Orientation Leader 2022-2023

University of Nebraska-Lincoln

Teaching and Learning Mathematics at the Post-Secondary Level I and II 2021-2022

University of Nebraska-Lincoln

A three-credit sequence of courses intended to train mathematics graduate teaching assistants how to be an effective teacher and classroom manager.

SERVICE

Girls Inc. 2024

University of Nebraska - Lincoln

The Eureka program by Girls Inc of Lincoln aims to empower young women in a safe, pro-girl environment to explore and expand on personal and professional development as they learn about options for their futures. Participants in the program are 8th -12th graders, and the program strives to provide career exposure in STEM-focused areas at no cost to them. The goal is to help close the gender gap in STEM careers by providing resources and opportunities to these young women, many of whom are from low-income families and may be first-generation college students. 8th grade and 9th grade participants engage in a month-long summer camp, while older participants are matched with summer internships around the community.

UNL Math Circle 2023-

University of Nebraska - Lincoln

The UNL Math Circle is an outreach event that brings university mathematicians and mathematical scientists together with high school students. While the presenters will explain new ideas, the meetings will be centered on activities rather than lectures. The focus is on mathematical topics outside of the typical high school curriculum.

Great Plains Alliance 2022-

University of Nebraska - Lincoln

The Great Plains Alliance allows UNL graduate students to give talks to undergraduates interested in math at local universities and colleges. The speaker and supporting graduate student hold a Q&A after the talk about graduate school..

Commutative Algebra Reading Seminar Co-Organizer 2022-2023

University of Nebraska - Lincoln

Along with one other graduate student, organized and conducted this weekly seminar of presentations by grad students, for grad students in various topics in commutative algebra.

Graduate Student Seminar Co-Organizer 2021-2022

University of Nebraska - Lincoln

Along with one other graduate student, organized and conducted this weekly seminar of presentations by grad students, for grad students.

NCUWM Volunteer 2020 -

University of Nebraska - Lincoln

The Nebraska Conference for Undergraduate Women in Mathematics is an event dedicated to promoting women's research in math by giving them the opportunity to network and present at a conference.

UNL Math Day Volunteer 2020 -

University of Nebraska - Lincoln

This is an annual event hosted by the UNL mathematics department for roughly 1500 high school math students from across the state of Nebraska.

COMPUTER SKILLS

Languages/Software: C++, Git/GitHub, Google Workspace, HTML/CSS, Java, JavaScript, Julia, LaTeX, Macaulay2, MatLab, Mathematica, Microsoft Office, Python

Algorithms: Discrete Fourier Transform, Euler Method, Gauss-Seidel Method, Gaussian Elimination, Jacobi Method, Newton Method, Runge-Kutta Methods, Steepest Descent