

Calum Heldt

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EDUCATION

University of Nebraska at Omaha – 4.0 GPA

Anticipated 2027

- Bachelor of Science in Mathematics with a Pure Math Concentration
- Bachelor of Science in Computer Science

Graduate Coursework

- Local Fields, Preliminary Arizona Winter School (PAWS) Fall 2024
- Modern Algebra I, University of Nebraska Lincoln Fall 2024

EXPERIENCE

Modeling Liquid Crystals with Numerical PDEs

May - Jul. 2025

- Created a repository for solving for a 2D system of liquid crystals at equilibrium
- Investigated formation of defects given various conditions from significant experiments
- Worked with **Dr. Andrew Hicks** at Carnegie Mellon University

Modeling and Visualizing STEM Project

June - Aug. 2024

- Created a public website at **mavs.uno** to make learning more accessible
- Intuitively explained STEM topics through interactive visuals and lessons
- Won Grant Sanderson's (3 Blue 1 Brown) Summer of Math Exposition for non-videos

Galois Theory Research

June 2022 – May 2024

- Classified a family of Galois of order p^4 and p^6 , with maximal nilpotency class
- Presented findings at the 2024 Hopf-Algebras and Galois Module Theory Conference
- Advised by **Dr. Griff Elder** at University of Connecticut

Math Education Research

June 2024 – Present

- Conduct research methods to examine college students' understanding of logarithms
- Use results to strengthen a conceptual framework for applying logarithmic identities
- Advised by **Dr. Keith Gallagher** at University of Nebraska

Learning Assistant, Teaching Assistant, and Tutor

Aug. 2023 – Present

- Tutor students enrolled in intro proof writing courses
- Assist professors with classroom instruction and grading for various math courses

LEADERSHIP POSITIONS

Math Club President

May 2024 – May 2025

- Organize educational and social math events, prepare students for the Putnam Exam
- Foster a strong mathematical community on campus
- Previously held Secretary position and ran technical workshops

MathCOUNTS Coach

Aug. 2024 – Present

- Coach middle school students for the MathCOUNTS national competition series
- Teach problem-solving skills and promote math engagement

PEER-REVIEWED CONFERENCE PROCEEDINGS

27th Annual SIGMAA on RUME

All My Work is Right, Why Didn't I Get the Right Answer? When Logarithmic Identities Fail

Heldt, C. & Gallagher, K. 27th Annual SIGMAA on RUME Conference, Alexandria, VA, 2025.

SKILLS

- Python, C, MATLAB, React, and Ionic Angular programming
- LaTeX typesetting
- Fullstack web development
- Collaborative problem-solving
- Research in algebra, number theory, differential equations, and math education

ACHIEVEMENTS

- NASA Nebraska Space Grant Recipient (Sept. 2023 – April 2024)
- Success in math competitions: 10 points on the Putnam exam ('24), 3rd statewide at UNL Math Day ('23 & '22), 10th as a team at Mu Alpha Theta Nationals ('23)
- Gilbert M. Hitchcock Memorial Scholarship in Mathematics, \$500 for 4 years awarded to a promising incoming freshman who declares math as their major
- Walter Scott, Jr. Scholarship, the most prestigious scholarship extended by the University of Nebraska system

VOLUNTEERING

- Regularly giving my time to the Completely KIDS nonprofit organization in Omaha, the Citizens' Climate Lobby in Omaha, and the Nebraska Mycological Society
- Writing problems for and assisting at the University of Nebraska Omaha's Math Contest for highschool students