

Emma L Schmidt

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SUMMARY

Ambitious, academically-driven second year grad student with extensive experience in research, tutoring, caretaking, and student leadership. Seeking a role where I can leverage my mathematical strengths and interests to benefit others.

STRENGTHS AND INTERESTS

Strengths:

- Leadership
- Organizational Skills
- Problem Solving
- Simplifying Complex Concepts

Interests:

- Applied Mathematics
- Chinese
- Piano (composing, accompanying, performing)

EDUCATION

PhD in Applied and Computational Mathematics and Statistics

Expected 2029

University of Notre Dame - South Bend, IN

- Current GPA: 4.0/4.0
- TA and grading duties for Applied Calc I and Linear Algebra

BS Mathematics, BA Piano Performance, Minor in Chinese

May 2024

Calvin University - Grand Rapids, MI

- GPA: 4.0/4.0
- Member of the Honors Scholars Program
- Activities: Dance Guild, Choir Officer, Campus Ministry Leader

RESEARCH AND TEACHING EXPERIENCE

UNIVERSITY OF NOTRE DAME— South Bend, IN

2025-Present

Graduate Research Assistant :: Explored computational problems in the field of Applied Algebraic Geometry. Advised by Jon Hauenstein and Charles Wampler.

- Utilized MATLAB and Bertini to write code, develop algorithms, and produce visualizations
- Presented at SIAM AG 2025 Conference
- Paper on computations on real hypersurfaces to appear in 2026 Journal of Algebra and Its Applications

UNIVERSITY OF NOTRE DAME— South Bend, IN

2024-2025

Graduate Teaching Assistant :: Taught and assisted undergraduate students in Calculus and Linear Algebra by teaching weekly labs sections, providing weekly office hours, and fulfilling grading duties.

- Answered questions clearly in a way that encouraged and promoted student learning
- Covered lecturing for lead professors and efficiently conveyed new concepts and examples

BRICKS 4 KIDZ— Grand Rapids, MI

Summer 2024

Lead Teacher - LEGO/STEAM Summer Camp :: Led daily classes for up to 20 elementary-age students, teaching them fundamental building and robotics skills using pre-made LEGO kits and model plans.

- Taught basic coding concepts and assisted students in building and coding their own LEGO creations
- Provided an energetic and safe space for kids while managing the classroom well

CALVIN UNIVERSITY– Grand Rapids, MI

Summer 2023

Mathematics Researcher :: Worked with Calvin professor James Turner in the field of Abstract Algebra, analyzing Hall Basis elements and creating counting formulas for said elements based on mathematical criteria.

- Found patterns within Hall Basis elements, and created formulas to count these elements using this pattern
- Invented a visualization method for abstract concepts that simplified and communicated clearly
- Used LaTeX to code and create figures, posters, and a paper about my findings

CALVIN UNIVERSITY– Grand Rapids, MI

Summer 2022

Mathematics Researcher :: Worked with a Calvin professor Todd Kaptiula and one other college student to study opinion dynamics using tools like bifurcation analysis, nonlinear ODEs, and MATLAB. Important highlights include the presence of a slowly evolving zealot population, and the discovery of a periodic orbit with the equations.

- Coded programs in MATLAB to simulate the outcomes of a three-dimensional system of equations
- Created a variety of color-coded 3D figures to best represent my findings
- Co-wrote a 20 page research paper and that has been published in SIAM's undergraduate research journal
- Presentations at Calvin University STEM poster fair and Calvin University Mathematics colloquium

MATHNASIUM – Grand Rapids, MI

2020-2022

Tutor :: Tutored students grades K-12 in Mathematics

- Assisted students with homework questions and test prep in order to improve their mathematics acumen
- Leveraged and improved Mathnasium-designed curriculum to help students grow in particular math skills

VARIOUS LOCATIONS – Grand Rapids, MI

2017-2022

Independent Tutor :: Tutored students from grades 7-11 in subjects such as Mathematics, English, and Science.

- Instructed students ranging from middle school student to high school including a junior student in calculus, resulting in a grade improvement from a B to an A-
- Assisted two foreign exchange students with their English language skills in order to help them better communicate

AQUINAS COLLEGE – Grand Rapids, MI

Summer 2018

Mathematics Research Assistant :: Worked with a math professor and other college students to learn more about hyperbolic geometry

- Used computer software to create visual representations of geometric concepts
- Contributed ideas to the team while also giving and receiving constructive criticism

WORK EXPERIENCE

QDOBA – Grand Rapids, MI

Summer 2021

Restaurant Crew Member :: Worked as a restaurant team member to assist customers and provide quality cuisine

- Created custom Mexican food and worked the cash register quickly and efficiently
- Cheerfully greeted customers while aiding in creating a positive team atmosphere

VARIOUS HOUSEHOLDS – Grand Rapids, MI

2015-2024

Child Caretaker :: Cared for children from ages 1-10 for a variety of families around the Grand Rapids area.

- Created a fun environment while keeping children safe and healthy
- Cooked and prepared meals for families and put children to bed

GREEN APPLE DESIGN – Grand Rapids, MI

Summer 2019

Interior Design Assistant :: Worked with an independent interior designer to create inspiring spaces for homeowners

- Created a streamlined process for assisting new customers
- Reconciled purchases to ensure proper billing took place