

# Mia Goldstein

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## Education

Expecting to graduate Spring 2025

**SUNY New Paltz, New Paltz** – *B.S. in Mathematics*

Minor in Computer Science

Dean's List Fall 2021-Spring 2024 | Overall GPA: 3.88

June 2024

**Summer School in Logic and Formal Epistemology, Carnegie Mellon University**

## Relevant Coursework

- Introduction to Proof
- Linear Algebra
- Foundations of Algebra
- Abstract Algebra
- Introduction to Category Theory
- Research in Mathematics

## Research Experience

June 2024 - Present

### Opinion Dynamics on Simplicial Pre-bundles

Constructing a model for influence in social networks via the language of simplicial complexes and homological algebra to allow for high-dimensional interactions.

October 2023 - May 2024

### Error Correcting Surface Codes on a Toric Model

Studied the relationship between lattice structure for toric codes and discrete vector bundles with connection via the language of simplicial sets.

May 2023 - October 2023

### Categorification of Sentence Modeling

Studied the structure of monoidal compact closed categories and their applications in natural language processing. Produced explicit constructions for unitors and associators of the product of general monoidal categories. Currently co-writing a thesis paper in LaTeX.

## Talks

- SUNY New Paltz Symposium for Undergraduate Mathematics Research | Fall 2024
  - **Presenter** | *Opinion Dynamics via Infinity Pre-Bundles*

- Nebraska Conference for Undergraduate Women in Mathematics | Spring 2024
  - **Presenter** | *Explicit Categorical Constructions Used in Modeling Sentences*
- SUNY New Paltz Symposium for Undergraduate Mathematics Research | Fall 2023
  - **Presenter** | *Categorical Structures in Modeling Sentences*

## Awards

- 2024 Trjizinsky Undergraduate Opportunity Award - American Mathematical Society

## Non-academic Activities and Experience

October 2022 - PRESENT

**Barista** | Mudd Puddle Cafe, *New Paltz, NY*

Barista and cashier coordinating with a kitchen and other staff in a fast paced customer service environment

May 2022 - August 2022

**Front of House** | Cafe D'Avignon, *New York, NY*

Barista and cashier with opening and closing responsibilities, restocking inventory and collaboration with others in a fast paced customer service environment

June 2019 - September 2019

**Intern** | Tim Coppens LLC, *New York, NY*

Worked for menswear designer Tim Coppens by coordinating with factories that made his new designs and creating a storage system for his past work