

RESEARCH

How Network Structure Shapes Epidemics (in progress)

Fall 2026

With Dr. Deena Schmidt, Dept. of Mathematics and Statistics, University of Nevada, Reno. SIR simulations on 500-person random, small-world and scale-free networks to find which structural properties predict outbreak size and speed.

p -adic Pseudorandom Number Generators

Euler Circle · Spring 2026

Builds PRNGs by iterating 1-Lipschitz functions on the p -adic integers, using Anashin's theorem to guarantee uniform output and maximal period.

Fourier Analysis Through the Lens of Linear Algebra

Euler Circle · March 2026

Derives the Fourier coefficient formulas as orthogonal projections in an inner-product space of functions.

AI and the Future of Work

Inspirit AI Scholars · Summer 2026

Six-person team study of AI job exposure using O*NET and Indeed data; built the AI Insight Dashboard. Inspirit AI Scholar certificate.

UNIVERSITY-LEVEL COURSEWORK

Stanford Online High School: Discrete Mathematics, Real Analysis, Data Structures and Algorithms

UC San Diego Extension: Multivariable Calculus, Java Programming II, General Biology II, General Physics I

University of Nevada, Reno: Linear Algebra, Principles of Microeconomics

Euler Circle: Fundamentals of Higher Mathematics, Infinite Series, p -adic Analysis

COMPETITION MATH

- **2nd place**, Nevada State Mathematics Championship, Level 4 (grades 9 and 10), and **1st place team** (2026)
- **1st place**, ARML local competition, grades 9 to 12 (2026); 7th place and NVMath ARML team member (2025)
- **1st place**, MathRocks season standings, NVMath, grades 9 to 12 (2025 to 2026); 4th place (2024 to 2025)
- **5th place**, Nevada State Math Championship, grades 9 to 12 (2025)
- Founded Reno Math, a six-student team at the Berkeley Math Tournament. Volunteer NVMath tutor; write original problems for the grades 1 to 8 levels of MathRocks.

FIRST ROBOTICS · THE IONIZERS, RENO

- Competed at the **FIRST World Championship**, Houston; **Rookie All-Star Award**, Las Vegas Regional; **5th alliance captain**, Idaho Regional (2026)
- Design robot components in Onshape; fundraising, grant writing, pit crew and scouting. Building robots since 4th grade; team member for three years.

INDEPENDENT PROJECTS

- **Code (GitHub):** slang-half-life (lifespan of Gen-Z slang), life-and-money (wealth and life expectancy), star-signals (what predicts GitHub stars), honest-backtester, quantkit, spread, composite
- **Interactive data notebooks (Observable):** nine data stories on markets, money and the economy

WRITING

- **The Trapdoor**, a twice-monthly newsletter on the math inside everyday questions (since June 2026)
- Published two books as a child: *Manifesting Butterflies* (Balboa Press) and *Journeys of the Rain* (Amazon KDP)

ENRICHMENT AND OTHER

- Davidson Young Scholar (2024 to present); Art of Problem Solving (algebra, number theory, calculus, Infinity Seminar); Harvard Computer Society AI Bootcamp (2025); AwesomeMath summer camp (2024)
- Languages: Albanian, French, Spanish, Latin
- Debate (Sage Ridge); community volunteering in Truckee; violin; martial arts