

# WILLIAM A. WEHRING

www.billy-wehring.com

Email: [william.a.wehring@gmail.com](mailto:william.a.wehring@gmail.com)

## EDUCATION

---

- University of Massachusetts Lowell** *May 2025 (expected)*  
M.S. in Master of Science in Mathematics, General Option, GPA: 4.0/4.0
- University of Massachusetts Lowell** *May 2020*  
B.S. in Physics and Applied Physics, GPA: 3.59/4.0

## RESEARCH INTERESTS

---

I am interested in number theory, p-adic analysis, quiver representations, and algebraic combinatorics.

## RESEARCH EXPERIENCE

---

- Graduate Research Assistant (RA) - Mathematics & Statistics Dept** Aug 2025 - Present  
*Supervisor: Dr. Gunawan* University of Massachusetts Lowell
- We are studying the combinatorics of Coxeter groups using quiver representations.
  - I will also be assisting an undergraduate student with learning Coxeter groups starting in January 2026.
- Summer Graduate RA - Mathematics & Statistics Dept** May 2025 - Aug 2025  
*Supervisor: Dr. Gunawan* University of Massachusetts Lowell
- We studied quiver representations and Auslander-Reiten quivers.
  - We studied some aspects of box-ball systems.
  - I wrote two reports that are available at <https://billy-wehring.com/research/>.
- Undergraduate RA - Physics Dept** Fall 2018 - Fall 2020  
*Supervisor: Dr. Kamal* Northwestern University
- I worked as part of a research group (QUEST)
  - My individual project was to exactly solve three and four-level systems that using blocking techniques.
- Summer Undergraduate RA - Physics Dept** June 2018 - Aug 2018  
*Supervisor: Dr. Kamal* Northwestern University
- I worked on entangled cat states as well as a new formalism to describe quantum systems when decoherence and decay are present. I used a Python package called QuTiP in my analysis.

## SEMINARS GIVEN

---

Mathematics & Statistics Seminar Talks, “Quite remarkable quiver representations,” Oct 2025.

## AWARDS

---

Mathematics Graduate Scholarship, Awarded by University of Massachusetts Lowell *Spring 2025*

## TEACHING EXPERIENCE

---

- Teacher at Sylvan Learning Center** Sept 2020 - May 2025
- I taught both math and science for a wide range of age groups (from 2nd graders to college students).
  - I also ran both SSAT and HSPT prep courses.

## Private Physics Tutor

Summer 2019

- I was a private tutor for a University of Massachusetts Lowell student who needed assistance with Physics II where I set up readings for him, homework and work examples.

## Private Math Tutor

Spring and Fall 2019

- I tutored math for a student studying for MTEL's.
- For this, I wrote a 19-page detailed study guide for her to work with.
- I spent time going over examples and explanations.

## SEMINARS ORGANIZED

---

### The P-Adic People Seminar

Planned for Spring 2026

- Stephanie Atherton and I are organizing a seminar to study p-adic analysis.
- Seminar website: <https://padicpeople.carrd.co/>

## MATH WRITING

---

### Newbie as Number Theory (Book)

- This is an introductory book on elementary number theory written with the assumption that the reader only has familiarity with high-school algebra.
- Available at <https://billy-wehring.com/newbie-at-number-theory-book/>

## SELECTED TOPICS IN MATHEMATICS (READING CLASSES)

---

### Algebraic Number Theory

Spring 2025

*Professor Tibor Beke*

- Primary book used: “Algebraic Number Theory” by Ben Green.
- Secondary reference book used: “Abstract Algebra: Theory and Applications” by Thomas W. Judson.

### Real Analysis II

Fall 2025

*Professor Joris Roos*

- Primary book used: Professor Joris Roos and Andreas Seeger lecture notes.
- The topics covered were: integration, sums and series, metric spaces, linear operators, multivariable differential calculus, and approximations of functions.
- Secondary book used: “Principles of Mathematical Analysis Third Edition” by Walter Rudin.

### Abstract Algebra II

Planned for Spring 2026

*Professor Emily Gunawan*

- Primary book: *Contemporary Abstract Algebra* by Joseph Gallian.