

Zachary Porat

Department of Mathematics and Computer Science
Wesleyan University
Exley Science Center, 6th Floor
265 Church Street
Middletown, CT 06459

✉ zporat@wesleyan.edu
🖱 <https://zporat.github.io>
🌐 <https://github.com/zporat>
🌍 U.S. Citizen
📅 Last Updated October 6, 2024

EDUCATION

Wesleyan University | MIDDLETOWN, CT 2020 – Present

- Ph.D. Candidate in Mathematics (Expected 2026)
- Advisor: David Pollack

Union College | SCHENECTADY, NY 2016 – 2020

- Bachelor of Science in Mathematics with Honors, *summa cum laude*
 - Honors Thesis: Classification of Torsion Subgroups for Mordell Curves [🔗](#)
- Physics Minor, Phi Beta Kappa, Scholars Program

TEACHING EXPERIENCE

Instructor of Record | WESLEYAN UNIVERSITY Fall 2022 – Present

- MATH 121 - Calculus I (Fall 2024)
- MATH 132 - Elementary Statistics (Fall 2022)

Teaching Assistant | WESLEYAN UNIVERSITY Fall 2021 – Present

- MATH 262 - Advanced Topics in Abstract Algebra (Spring 2024)
- MATH 261 - Introduction to Abstract Algebra (Fall 2023)
- MATH 225 - Introduction to Real Analysis (Spring 2022, Spring 2023)
- MATH 228 - Discrete Mathematics (Fall 2021)

Math Workshop Tutor | WESLEYAN UNIVERSITY Fall 2020 – Spring 2021

- Covers the entire selection of undergraduate math courses at Wesleyan

Course Assistant | UNION COLLEGE Fall 2017 – Winter 2020

- MTH 340 - Linear Algebra (Winter 2020)
- MTH 110 - Calculus I (Fall 2017, Fall 2018, Fall 2019)
- MTH 112 - Calculus II (Winter 2018, Winter 2019)
- MTH 115 - Differential Vector Calculus and Matrix Theory (Spring 2018)

Calculus Help Center Tutor | UNION COLLEGE

Fall 2019 – Winter 2020

- Covers Calculus I, Calculus II, and Multivariable Calculus with Linear Algebra

MENTORSHIP

Directed Reading Program Mentor | WESLEYAN UNIVERSITY

Spring 2023 – Present

- William Dollhopf, Mathematical Cryptography (Fall 2023)
 - Talk Title: “Introduction to Cryptography and the ElGamal Key Cryptosystem”
- Emily Bennett, Mathematical Cryptography (Spring 2023)
 - Talk Title: “Understanding Public Key Cryptography: The Diffie-Hellman Key Exchange”
- Stefan Hesseling, Mathematical Cryptography (Spring 2023)
 - Talk Title: “RSA and Integer Factorization”

PUBLICATIONS

- [3] **Computations Directly on the Cuspidal Cohomology of Congruence Subgroups of $SL(3, \mathbb{Z})$** , preprint.

 [arXiv:2410.02734](https://arxiv.org/abs/2410.02734)  [Code](#)

- [2] **Family Sizes for Complete Multipartite Graphs** (with Danielle Gregg, Thomas Mattman, and George Todd), *Involve, a Journal of Mathematics*, Vol. 15, No. 4 (2022), 669-686.

 [MR4536581](#), DOI: [10.2140/involve.2022.15.669](https://doi.org/10.2140/involve.2022.15.669)

- [1] **PIXE Analysis of Synthetic Turf** (with Sajju Chalise, Morgan Clark, Skye Conlan, Scott LaBrake, and Michael Vineyard), *Environment and Ecology Research*, Vol. 6, No. 1 (2018), 60-65.

 DOI: [10.13189/eer.2018.060105](https://doi.org/10.13189/eer.2018.060105)

INVITED TALKS

- **How Computers are Shaping Math**, Manhattan College Math Seminar, November 15, 2023.
- **The Search for Large Prime Numbers**, Union College Math Seminar, January 12, 2023.

CONTRIBUTED TALKS

These are talks for which my submitted abstract was selected by the event organizers.

- **Computations Directly on the Cuspidal Cohomology of Congruence Subgroups of $SL(3, \mathbb{Z})$** , Conférence de Théorie des Nombres Québec-Maine (Université Laval), October 6, 2024.
- **Additional Computations of the Hecke Action on the Cuspidal Cohomology of Congruence Subgroups of $SL(3, \mathbb{Z})$** , 36th Automorphic Forms Workshop (Oklahoma State University), May 24, 2024.

- **Death at 20: The Story of Évariste Galois**, Graduate Student Seminar (Wesleyan University), March 9, 2023.
- **An Introduction to Cryptography**, Graduate Student Seminar (Wesleyan University), February 10, 2022.
- **An Introduction to Elliptic Curves**, Graduate Student Seminar (Wesleyan University), October 14, 2021.

WORKSHOPS

36 th Automorphic Forms Workshop	May 20-24, 2024
📍 Oklahoma State University	
Arizona Winter School: Abelian Varieties	March 2-6, 2024
📍 University of Arizona	
Connecticut Summer School in Number Theory	June 6-12, 2022
📍 University of Connecticut	
Connecticut Summer School in Number Theory	June 8-14, 2020
📍 Online due to COVID-19	

SERVICE

• Co-organizer of the Directed Reading Program 🔗	Spring 2023 – Present
• President of the Wesleyan AMS Graduate Student Chapter 🔗	Fall 2023 – Present
• Creator and editor of the departmental graduate student website	Fall 2021 – Present
• Co-organizer of the departmental Graduate Student Seminar 🔗	Spring 2022 – Fall 2023
• Vice President of the Wesleyan AMS Graduate Student Chapter	Fall 2021 – Spring 2023

HONORS AND AWARDS

• Martin Terry Resch Prize 🔗	May 2020
• Phi Beta Kappa Membership	May 2020
• Pi Mu Epsilon Membership	April 2019

REFERENCES

- David Pollack, dpollack@wesleyan.edu