

Charlotte Aten

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📄 aten.cool

Education

- 2017– **Mathematics PhD student**, *University of Rochester*, Rochester, NY.
Expected May 2022
- 2014–2017 **Bachelor of Science in Mathematics (Honors)**, *University of Rochester*, Rochester, NY.
- 2012–2014 **Associate of Science in Mathematics**, *Monroe Community College*, Rochester, NY.
awarded with honors

Research Interests

Algebraic topology, category theory, combinatorics, lattice theory, representation theory, universal algebra.

Publications

- Aten, Charlotte. “Multiplayer Rock-Paper-Scissors”. In: *Algebras and Lattices in Hawai’i*. Ed. by Kira Adaricheva, William DeMeo, and Jennifer Hyndman. Apr. 2018, pp. 12–19.
- “Multiplayer rock-paper-scissors”. In: *Algebra universalis* 81.3 (2020).
- Aten, C. et al. “Tiling sets and spectral sets over finite fields”. In: *Journal of Functional Analysis* (Sept. 2015).

Talks

- 2021 **SUMS Math Talk**, *University of Rochester*.
My Hawai’ian Earring
- 2021 **New York Combinatorics Seminar (Spring)**, *The City University of New York*.
Multiplayer rock-paper-scissors
- 2021 **Rochester Combinatorics Seminar (Spring)**, *University of Rochester*.
Universal algebra gives universal approximation for neural nets
- 2021 **Panglobal Algebra and Logic Seminar (Spring)**, *University of Colorado at Boulder*.
Multiplayer rock-paper-scissors
- 2020 **Binghamton University’s Graduate Conference in Algebra and Topology**, *Binghamton University*.
Multiplayer rock-paper-scissors
- 2020 **SUMS Math Talk**, *University of Rochester*.
A High School Algebra Problem
- 2019 **Graduate Student Seminar (Fall)**, *University of Rochester*.
More Multiplayer Rock-Paper-Scissors
- 2018 **Binghamton University’s Graduate Conference in Algebra and Topology**, *Binghamton University*.
Topological Lattices and Book Spaces
- 2018 **Graduate Student Seminar (Fall)**, *University of Rochester*.
Classifying Topological Magmas

- 2018 **Algebras and Lattices in Hawai'i**, *University of Hawai'i at Manoa*.
Multiplayer Rock-Paper-Scissors
- 2018 **Graduate Student Seminar (Spring)**, *University of Rochester*.
Multiplayer Rock-Paper-Scissors
- 2017 **Binghamton University's Graduate Conference in Algebra and Topology**, *Binghamton University*.
Universal Algebra and Boolean Semilattices
- 2017 **Graduate Student Seminar (Fall)**, *University of Rochester*.
A Brief Introduction to Universal Algebra
- 2017 **Senior thesis presentation**, *University of Rochester*.
The Topology of Magmas
- 2017 **Nebraska Conference for Undergraduate Women in Mathematics**.
Poster: Relational Structures as Directed Hypergraphs
- 2016 **National Conference on Undergraduate Research**, *University of North Carolina at Asheville*.
The Topology of Magmas
- 2016 **National Conference for McNair Scholars**, *University of Maryland*.
Topological Algebra: On Viewing Operations as Simplicial Complexes
- 2015 **David T. Kearns Center Research Symposium**, *University of Rochester*.
Constructions of Geometric Objects Encoding Algebraic Structures
- 2014 **Scholars' Day**, *Monroe Community College*.
Division by Zero: Development of a Relevant Algebra with Historical Context
- 2013 **Math Awareness Month**, *Monroe Community College*.
An Introduction to Hyperspace with a Construction of the 4-Cube

Events Hosted

- 2019 **Pi Day**, *University of Rochester*.
Mathematical art exhibit and student poster session.
- 2014 **Math Awareness Month**, *Monroe Community College*.
Interactive Math Day

Other Conferences Attended

- 2017 **Joint Mathematics Meetings**, *Atlanta, GA*.

Honors and Awards

- 2017 **Provost's Fellowship**, *University of Rochester*.
Fellowship awarded to broaden the diversity of graduate students at the university.
- 2017 **Doris Ermine Smith Award**, *University of Rochester*.
Award given in recognition of students who show significant achievement in the areas of French and/or Mathematics.
- 2015 **McNair Scholar**, *University of Rochester*.
United States federal program which prepares underrepresented undergraduate students for doctoral studies.
- 2014 **Xerox STEM Scholarship**, *Monroe Community College*.
Scholarship created to support Monroe County residents who will pursue careers in STEM.

2013 **Jan Z. Wiranowski Renaissance Scholarship**, *Monroe Community College*.
Scholarship created to assist high-achieving students who will pursue careers in mathematics or a mathematics-related field.

Programming Languages and Other Technologies

Python programming language
L^AT_EX markup language
Linux operating system *network administration, shell scripting experience*
SageMath mathematics software
Eclipse integrated development environment
Git version control software
Blender graphics software *experience scripting with Python*

Teaching

Fall 2021 **TA for MTH 208 Operations Research**, *University of Rochester*.
Summer 2021 **Instructor for MTH 165 Linear Algebra with Differential Equations**, *University of Rochester*.
Spring 2021 **Instructor for informal representation theory reading course**, *University of Rochester*.
Taught representation theory to undergraduate math student David Crncevic.
Spring 2021 **Workshop TA for MTH 161 Calculus IA**, *University of Rochester*.
Spring 2021 **Grader for MTH 248 Graph Theory**, *University of Rochester*.
Graded homework assignments.
Fall 2020 **Grader for MTH 165 Linear Algebra with Differential Equations**, *University of Rochester*.
Summer 2020 **Instructor for MTH 162 Calculus IIA**, *University of Rochester*.
Spring 2020 **Recitation TA for MTH 162 Calculus IIA**, *University of Rochester*.
Fall 2019 **Recitation TA for MTH 164 Multidimensional Calculus**, *University of Rochester*.
Spring 2019 **Grader for MTH 248 Graph Theory**, *University of Rochester*.
Graded homework assignments.
2014–2016 **Tutor**, *University of Rochester Center for Excellence in Teaching and Learning*.
Peer tutor for mathematics courses.

Outreach

Summer 2021 **Python instructor and project leader for Tripods NSF REU/Grad for All 2021**, *University of Rochester/Cornell University*.
Guided coding sessions and initiated an ongoing research project on a connection between neural nets and universal algebra.
Summer 2020 **Python instructor and Mentor for Tripods NSF REU/Grad for All 2020**, *University of Rochester/Cornell University*.
Guided coding sessions, wrote example code and exercises, and mentored undergraduates from underrepresented groups attending local colleges.
Summer 2018 **Teaching Assistant for Grad STEM for All**, *University of Rochester*.
Lectured, guided problem sessions, and mentored undergraduates from underrepresented groups attending local colleges.

Fall 2017 **Tutor for Upward Bound**, *University of Rochester Kearns Center*.
Volunteer tutor for underrepresented high school students.

Organizations

2021–2022 **outGRADS Treasurer**, *University of Rochester*.

outGRADS is a queer graduate student affinity organization founded in 2021.

2018–2022 **AMS Graduate Student Chapter President**, *University of Rochester*.

2013–2014 **Math Club President**, Monroe Community College.

2012–2013 **Math Club Treasurer**, *Monroe Community College*.