ALEXANDRA BONAT

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EDUCATION

Williams College, Bachelor of Arts — August 2019 - June 2023
Honors in Mathematics, Cum Laude

University of Wisconsin, Madison, expected PhD in Mathematics — beginning August 2023

MATH EXPERIENCE

SMALL REU — June 2022 - August 2022
Williams College — *Williamstown, MA*

- Member of group of eight students studying knot theory and hyperbolic 3-manifolds under Colin Adams.
- Developed constructions to extend the notion of hyperbolicity of knots and associate hyperbolic volume to knotoids.
- Developed generalizations of knotoids and spatial graphs and their corresponding invariants.
- Contributed to two preprints: *Hyperbolic Knotoids* and *Generalizations of Knotoids and Spatial Graphs*.

Senior Honors Thesis in Mathematics, Commutative Algebra — September 2022 - June 2023
Williams College — *Williamstown, MA*

- Worked with advisor Susan Loepp to show that local (Noetherian) unique factorization domains (UFDs) can be noncatenary at infinitely many places, and to construct a local UFD of dimension four that is noncatenary at every height one prime ideal.

Mathematics Teaching Assistant — February 2022 - May 2023
Williams College — *Williamstown, MA*

- Two semesters of Introductory Abstract Algebra and one semester of Computational Algebraic Geometry
- Assisted students with problem sets and other course material in biweekly TA sessions, and provided detailed feedback on daily and weekly problem sets.

LEADERSHIP

Student Math/Stat Advisory Board — September 2022 - June 2023
Williams College — *Williamstown, MA*

- Organized department events such as Math/Stat Preregistration Ice Cream Social, Weekly Math Snacks, and the Math/Stat Mentorship program kickoff event

Vice President, Association for Women in Mathematics — September 2022 - June 2023
Williams College — *Williamstown, MA*

- Facilitated community among women and other underrepresented groups in math through mentorship, hosting social events, inviting speakers, etc.

OTHER EXPERIENCE

Computer Science Research Assistant — June 2021 - August 2021
Williams College — *Williamstown, MA*

- Worked with advisor Kelly Shaw to characterize performance of filter data structure used to minimize high-latency memory accesses in the processing of nondeterministic finite automata (NFAs) on a GPU.
- Developed an algorithm to restructure NFA which improved performance of filter.

Computer Science Teaching Assistant (Introductory Sequence) — September 2020 - May 2021
Williams College — *Williamstown, MA*

- Led TA sessions where students could ask questions and get assistance in debugging their code, and gave detailed feedback on coding assignments.