

# Alexis Newton

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## Appointments

**Aug 2025     Augusta University**  
Assistant Professor of Mathematics

## Research Interests

Number theory, arithmetic geometry, elliptic curves and abelian varieties, rational points on curves, modular curves, computational and algorithmic work.

## Education

**2020-2025     Emory University**  
Ph.D. in Mathematics  
Advisor: David Zureick-Brown  
Ph.D. Title: “*Quartic torsion and quartic points on some rank 0 modular curves*”

**2018-2020     Wake Forest University**  
M.A. in Mathematics  
Advisor: Jeremy Rouse

**2014-2018     High Point University**  
B.A. in Mathematics and English Writing  
Advisor: Jenny Fuselier

## Publications and Preprints

**Oct 2024**     “Quartic torsion and quartic points on some rank 0 modular curves” with M. Cerchia  
(In preparation)

**Mar 2022**     “Integers that are sums of two rational sixth powers” with J. Rouse,  
Published in *Canadian Mathematical Bulletin* 2023; 66(1):166-177.  
doi:10.4153/S0008439522000157

**Aug 2019**     “Prime Graph Labelings of  $C_n \star S_4$ ”  
Published in *Innovation: Journal of Creative and Scholarly Work* vol. 7, 2019  
(*High Point University Undergraduate Journal*)

## Teaching

### Instructor of Record (Emory University)

Fall 2024	Calculus II (MATH 112)
Spring 2024	Calculus II (MATH 112)
Fall 2023	Calculus I (MATH 111)
Fall 2022	Calculus I (MATH 111)

### Graduate Teaching Assistant (Emory University)

Fall 2021	Adv. Calc for Data Sciences (MATH 210)
Spring 2022	Adv. Calc for Data Sciences (MATH 210)

### Grader (Emory University)

Fall 2020	Foundations of Mathematics (MATH 250)
Spring 2021	Intro to Combinatorics (MATH 330)

### Graduate Teaching Assistant (Wake Forest University)

Fall 2018	Calculus with Analytic Geometry II (MST 112)
Spring 2019	Linear Algebra I (MST 121)
Summer '19	Calculus with Analytic Geometry II (MST 112)
Summer '19	Calculus with Analytic Geometry I (MST 111)
Fall 2019	Calculus with Analytic Geometry I (MST 111)
Spring 2020	Calculus with Analytic Geometry I (MST 111)

## Computational Experience

**Programs** Python, SageMath, MAGMA, C, LaTeX, Maple

**June - Google Summer of Code 2021**

**Aug 2021** Student Developer for SageMath  
Topic: Implement Small Groups  
Advisor: Mckenzie West

*The goal of this project was to improve the conversation between Sage and GAP (the SmallGrp package).*

**Aug 2019 Women in Sage (2019)**

Sage Days 103 St. Louis, MO

Topic: Sage Interactions - Cryptography

Advisors: Amy Feaver and Eva Goedhart

*Improving the cryptography functionality and documentation for*

<https://wiki.sagemath.org/interact/cryptography>

## Organization and Outreach

Nov 2022 Student Leader for AMS Graduate Student Town Hall  
*Topic: Advocacy and Policy Issues that Impact Your Education and Research*

July 2022 - Staff writer for Mathematical Association of America  
Sep 2024 MAA Graduate Student Blog: Learning Through the Ranks

Fall 2020 - Co-organizer of RANT, Graduate Student Seminar on Algebra and Number Theory  
Spring 2024 *Emory University*

Oct 2021- Staff Writer for American Mathematical Society  
Nov 2021 Graduate Student Blog: By and for graduate students

Fall 2020 - Spring 2024	Instructor with Emory Math Circle for Middle School Level A/B <i>Worked to plan and lead math exploration activities for middle school students in the Atlanta community.</i>
Fall 2022, Fall 2024	Volunteer for Julia Robinson Math Festival, <i>Emory University</i>
Fall 2022, Fall 2021	Emory Math Directed Reading Program <i>Mentored two students for a program matching undergraduates with graduate students to read and discuss a mathematical text.</i> Topic: Computational Number Theory

## Conferences and Seminars

### Invited Talks

Sept 2024	Colloquium Talk: “The Game of Nim” <i>Barnard College</i>
Jan 2024	JMM 2024: “Quartic torsion and quartic points on some rank 0 modular curves” <i>Special Session on Arithmetic Geometry with a View Towards Computation</i>
Sept 2023	AWM Research Symposium: “Sums of Rational Sixth Powers” <i>Atlanta Clarke University</i>
Nov 2021	Undergraduate Student Seminar: “Sums of Rational Sixth Powers” <i>Washington University in St. Lewis</i>

### Contributed Talks

Sept 2024	Palmetto Number Theory Series <i>Wake Forest University</i>
April 2024	Texas-Oklahoma Representations and Automorphic Forms XIII (Speed Talk) <i>University of North Texas</i>
June 2022	Association for Women in Mathematics Research Symposium (Poster Session) <i>University of Minnesota</i>
Dec 2019	Palmetto Number Theory Series <i>Clemson University</i>
Nov 2019	Number Theory Colloquium <i>Wake Forest University</i>
March 2018	Mathematical Association of America Southeastern Conference <i>Clemson University</i>

### Selected Conference and Workshop Attendance

April 2023	Georgia Algebraic Geometry Symposium (UGA)
Feb 2023	Introductory Workshop: Diophantine Geometry (MSRI)
Jan 2023	IAS Spring Opportunities Workshop
Aug 2022	PCMI 2022 Summer Session (Computation in Number Theory)
June 2022	CTNT 2022 Summer School (UConn)
May 2022	Anabelian Days Down in Georgia (UGA)
April 2022	Georgia Algebraic Geometry Symposium (Emory)

Nov 2019	Modular Forms, Arithmetic, and Women in Math (Emory)
Sept 2019	Palmetto Number Theory Series (UNC Charlotte)
Aug 2019	Sage Days 103 - Women in Sage (St. Louis)
May 2019	Barrett Lectures - "Recent Developments in Number Theory" (UT Knoxville)
April 2019	SERMON (UNC Greensboro)
March 2019	AWM Piedmont-Triad Conference (WFU)
March 2018	Mathematical Association of America Southeastern Conference (Clemson)
March 2017	Mathematical Association of America Southeastern Conference (Mercer)

## Awards and Honors

Pi Mu Epsilon Honorary National Mathematics Society Member  
 High Point University Presidential Scholar  
 High Point University Honors Scholar  
 HPU Mathematics and Computer Science Departmental Honors  
 High Point University 2018 Tutor of the Year  
 Alpha Lambda Delta Honors Fraternity Member

## Membership

Association for Women in Mathematics Club Member, Wake Forest University  
 Pi Mu Epsilon Member, Wake Forest University  
 Math Club Member, Wake Forest University  
 Mathematics, Actuarial Science, Computer Science, and Statistics Club Member, High Point University  
 Volunteer Mathematics Tutor at Johnson Street Global Studies Middle School, NC  
 Tutor Club Member, High Point University  
 Women's Club Soccer Team Member, High Point University