

# Alexis Newton

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W431 Math and Science Center  
Emory University, Department of Mathematics,  
400 Dowman Drive, Atlanta, GA 30322

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## EDUCATION

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### Emory University

Ph.D in **Mathematics** Sept 2020 - May 2025  
Advisor: David Zureick-Brown (expected)

### Wake Forest University

M.A. in **Mathematics** Sept 2018 - May 2020  
Advisor: Jeremy Rouse

### High Point University

B.A. in **Mathematics** and **English Writing** Sept 2014 - May 2018  
Advisor: Jenny Fuselier

## RESEARCH EXPERIENCE

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**Google Summer of Code 2021**, Student Developer for SageMath Summer 2021  
Implement Small Groups  
Advisor: Mckenzie West  
*The goal of this project is to improve the conversation between Sage and GAP (the SmallGrp package).*

**M.A. Thesis**, Wake Forest University Fall 2018 - Spring 2020  
Sums of Two Sixth Powers  
Advisor: Jeremy Rouse  
*Proved that the smallest integer which is a sum of two rational sixth powers and not a sum of two integer sixth powers is 164,634,913 using techniques such as local solvability testing, elliptic curve maps, and the Mordell-Weil Sieve, which is a method for showing a curve  $C$  has no rational points.*  
A. Newton, J. Rouse, Integers that are sums of two rational sixth powers, *Cambridge University Press*  
Published in *Canadian Mathematical Bulletin* March 7, 2022

**Women in Sage (2019)**, Sage Days 103 St. Louis, MO August 7-9, 2019  
Sage Interactions - Cryptography  
Advisors: Amy Feaver and Eva Goedhart  
*Improving the cryptography functionality and documentation for*  
<https://wiki.sagemath.org/interact/cryptography>

**Undergraduate Mathematics Honors Thesis**, Hight Point University Fall 2017 - Spring 2018

Prime Graph Labelings of  $C_n \star S_4$

Advisor: Jenny Fuselier

*Proved a cycle graph with four vertices, where a star with two edges is “attached” to each cycle vertex exhibits a prime graph labeling for all  $n \in \mathbb{N}$ ,  $n \geq 3$ .*

Published in *Innovation: Journal of Creative and Scholarly Work*

*HPU Journal*  
vol. 7, 2019

## TEACHING EXPERIENCE

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### Graduate Teaching Assistant, Emory University

*Graded student assignments, conducted lab sessions for up to 20 students, held office hours.*

Foundations of Mathematics (MATH 250)	Fall 2020
Intro to Combinatorics (MATH 330)	Spring 2021
Adv. Calc for Data Sciences (MATH 210)	Fall 2021
Adv. Calc for Data Sciences (MATH 210)	Spring 2022

### Graduate Teaching Assistant, Wake Forest University

*Graded assignments, held study sessions for classes of up to 30 students, and tutored students in a one-on-one setting.*

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

### Supplemental Instructor, High Point University

*Assisted students within the classroom environment, held independent office hours for extra support, and organized and led guided test review sessions.*

Business Calculus	Fall 2016, 2018; Spring 2015, 2016, 2018
Calculus II	Fall 2017
Pre-Calculus	Spring 2017
Topics in Mathematics	Summer 2018

### Mathematics Tutor, High Point University

*Helped students to excel in mathematics courses and operated both group and independent tutoring sessions.*

Classes Tutored: Pre-Calculus, Business Calculus, Calculus I, Calculus II

## CAMPUS AND COMMUNITY INVOLVEMENT

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- Co-organizer with Chris Keyes of Graduate Student Seminar on Algebra and Number Theory, Emory University Fall 2020 - Present
- Treasurer for Association for Women in Mathematics, Emory University
- Instructor with Emory Math Circle for Middle School Level A/B Fall 2020 - Spring 2022
- 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

## CONFERENCES AND WORKSHOPS

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### Oral Presentations:

- AWM Research Symposium (Poster Session) June 2022  
*University of Minnesota*
- Undergraduate Student Seminar Nov 2021  
*Washington University in St. Lewis*
- Graduate Student Seminar on Algebra and Number Theory Feb 2021  
*Emory University*
- Graduate Student Seminar on Algebra and Number Theory Sept 2020  
*Emory University*
- Palmetto Number Theory Series Dec 2019  
*Clemson University*
- Association for Women in Mathematics Brown Bag Series Nov 2019  
*Wake Forest University*
- Number Theory Colloquium Nov 2019  
*Wake Forest University*
- Mathematical Association of America Southeastern Conference March 2018  
*Clemson University*
- Research and Creative Works Symposium March 2018  
*High Point University*
- Research and Creative Works Symposium March 2017  
*High Point University*

### Attended:

- PCMI 2022 Summer Session (Computation in Number Theory) July-Aug 2022
- CTNT 2022 Summer School (UConn) June 2022
- Anabelian Days Down in Georgia (UGA) May 2022
- Georgia Algebraic Geometry Symposium (Emory) April 2022
- Palmetto Number Theory Series (Clemson) Dec 2019
- Modular Forms, Arithmetic, and Women in Math (Emory) Nov 2019
- Palmetto Number Theory Series (UNC Charlotte) Sept 2019
- Sage Days 103 - Women in Sage Aug 2019
- Barrett Lectures - "Recent Developments in Number Theory" (UT Knoxville) May 2019
- SERMON (UNC Greensboro) April 2019
- AWM Piedmont-Triad Conference (WFU) March 2019
- Mathematical Association of America Southeastern Conference (Clemson) March 2018
- Mathematical Association of America Southeastern Conference (Mercer) March 2017

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**AWARDS AND HONORS**

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- 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

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**TECHNICAL SKILLS**

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**Programs:** Python, SageMath, MAGMA, C, LaTeX, Maple, Microsoft Office Suite

**College Reading and Learning Association Certified Master Tutor (Level 3):** Completed 30+ hours of pedagogical training, 120+ hours of student contact and led multiple tutor training sessions.

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**ADDITIONAL WORK EXPERIENCE**

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Library Services Student Assistant <i>Wake Forest University Library</i>	May 2019 - May 2020
Writing Center Tutor <i>High Point University</i>	Sept 2015 - May 2018
Copy Editor <i>The Journal of Human Evolution</i>	Oct 2014 - Sept 2015