

ASHLEY M. THARP

Department of Mathematics * North Carolina School of Science and Mathematics
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EDUCATION

Raleigh, NC 2023	North Carolina State University PhD in Mathematics Thesis: "Arcs and Shards" advised by Nathan Reading
2021	MS in Mathematics
Houston, TX 2018	University of Houston BS in Mathematics; Minor in Spanish; cum laude

TEACHING EXPERIENCE

2023-present	Instructor of Mathematics: 6 semesters (●), 3 January terms (○) North Carolina School of Science and Mathematics
	<ul style="list-style-type: none">● Calculus Ib (Spring 2026) 18 students● Calculus Ia (Fall 2025) 20 students● Calculus I Co-Requisite (Fall 2025) 19 students● Research in Mathematics (Spring 2026) 12 students (Spring 2025) 12 students● Combinatorics & Game Theory (Spring 2026) 19 students (Fall 2025) 15 students (Spring 2025) 31 students (Fall 2024) 21 students● Calculus II (Spring 2024) 23 students● Calculus I (Fall 2024) 35 students (Fall 2023) 33 students● Topics in Theoretical Mathematics (Spring 2024) 15 students● Graph Theory with REX Math (Fall 2023) 22 students○ Research in Mathematics (January 2026) 27 students (January 2025) 39 students (January 2024) 26 students○ Adulting 101 (January 2026) 24 students○ A, B, D, Easy as 1, 2, 3 (January 2024) 11 students

- 2019-2023 **Instructor of Record: 3 semesters, 1 summer session**
 North Carolina State University
- Foundations of Advanced Mathematics (Spring 2023) 17 students
 - Calculus 2 (Summer 2021) 20 students
 (Spring 2020) 31 students
 - Introduction to Modern Algebra (Fall 2019) 18 students
- 2021-2022 **Graduate Support Resource Teaching Assistant: 3 semesters**
 North Carolina State University
- Developed First Year Grad Seminar with faculty instructor and Director of Graduate Program
 - Led First Year Grad Seminar meetings, workshops for all grad students
 - Observed and provided feedback for all first year students on TAs
- 2018-2020 **Recitation Leader: 3 semesters**
 North Carolina State University
- Elements of Calculus (Fall 2020) ~ 60 students
 - Calculus 2 (Spring 2019) 67 students
 (Fall 2018) 103 students
- 2017-2018 **Undergraduate Peer Facilitator: 2 semesters**
 University of Houston
 Co-led practice sessions with graduate TAs, graded exams and weekly quizzes
- Calculus 1 (Spring 2018) 40 students
 (Fall 2017) 60 students

HONORS AND AWARDS

- 2025-2026 **Project NExT Fellow, Orange '25 Cohort**
 Mathematical Association of America
- 2022-2023 **Preparing the Professoriate Fellow**
 Graduate School, North Carolina State University
- 2022 **Graduate Student Excellence Award**
 College of Sciences, North Carolina State University
- 2020 **Excellence in Classroom Teaching Award**
 Graduate Student Association, North Carolina State University
- 2018 **Phi Beta Kappa Honor Society, Texas Mu Chapter**
 University of Houston
- 2017 **Phi Kappa Phi Honor Society, Chapter 54**
 University of Houston
- 2016 **teachHOUSTON Challenge Fund Scholarship**
 University of Houston

RESEARCH EXPERIENCE

1. Barnard, E., Reading, N., **Tharp, A. M.** Noncrossing arc diagrams of type B
(Submitted to arXiv, April 2025)
 2. S. Dimitrov, N. Fox, K. Hadaway, **Tharp, A. M.**, S. Wagner. Counting Colored Trees
(Submitted to arXiv, February 2026)
 3. Barnard, E., Reading, N., **Tharp, A. M.** Noncrossing arc diagrams of type D
(In progress, expected Spring 2026)
 4. Reading, N., **Tharp, A. M.** Shard intersections and noncrossing arc diagrams
(In progress, expected Summer 2026)
- 2025 **Participant, Lattice Theory Workshop 25w5483**
Banff International Research Station
Problem: Lattice Theory and Polyhedral Geometry
- 2022 **Participant, Trees in Many Contexts**
Mathematics Research Communities, American Mathematics Society
Problem: Coloring Plane Trees

SERVICE AND LEADERSHIP EXPERIENCE

- 2025-2026 **Chair, SIGMAA Teaching Advanced High School Mathematics**
Mathematical Association of America
- 2025-2026 **Co-coordinator of Joint Mathematics Meetings Sessions**
MAA Project NExT Orange '25 Cohort
- 2025-2026 **Member, Community Conduct Board**
North Carolina School of Science and Mathematics
- 2025 **Chaperone, MathWorks Math Modeling (M3) Challenge Final**
North Carolina School of Science and Mathematics
- 2024-2026 **Member, Student Support Working Group**
Mathematics Department, North Carolina School of Science and Mathematics
- 2024-2025 **Member, Academic Honesty Committee**
North Carolina School of Science and Mathematics
- 2024-2025 **Faculty Sponsor, Kuthu x Teenmaar Club**
North Carolina School of Science and Mathematics
- 2024 **Faculty Sponsor, Bridging the Gap: Unpacking Mental Health
Science & Real-World Action Forum**
North Carolina School of Science and Mathematics
- 2023-2024 **Member, Calculus Working Group**
Mathematics Department, North Carolina School of Science and Mathematics
- 2022-2023 **Organizer, Teaching and Learning Seminar**
Department of Mathematics, North Carolina State University

- 2022-2023 **Member, Diversity, Equity, and Inclusion Committee**
Department of Mathematics, North Carolina State University
- 2022 **Volunteer, Catalyst Summer Program**
Science House, North Carolina State University
- 2022 **Volunteer, Sonia Kovalevsky Day**
AWM Graduate Student Chapter, North Carolina State University
- 2021-2023 **Co-President, Graduate Instructor Support and Tools**
2019-2023 **Committee Member**
North Carolina State University
- 2020-2023 **Mentor, Undergrads Union Grads**
North Carolina State University
- 2020-2023 **Mentor, AMS Graduate Student Chapter**
North Carolina State University
- 2021-2022 **President, AMS Graduate Student Chapter**
2020-2021 **Secretary**
North Carolina State University
- 2020-2022 **Organizer, Pure Graduate Seminar, “PuGS”**
North Carolina State University
- 2020 **Triangle Area Graduate Mathematics Conference, “TAGMaC”**
NCSU & UNC Chapel Hill
Co-organized with boards of UNC-CH and NCSU AMS student chapters
- 2018-2023 **Member, Association for Women in Mathematics**
North Carolina State University
- 2016 **Volunteer, KIPP Liberation Algebra Boot Camp**
Houston, TX

PROFESSIONAL DEVELOPMENT

- 2025 **Same Task, New Twist: Reframing Traditional Tasks to be More Inquiry-Based**
SIGMAA Inquiry-Based Learning, Mathematical Association of America
- 2025-2026 **Project NExT**
Mathematical Association of America
- 2025 **Evidence-Based Practices for Effective Mentorship**
Mathematical Association of America
- 2024 **AI in the Math Classroom**
NCSSM Dean of Data Science
- 2022 **Introduction to Courageous Conversations**
NCSU Office for Institutional Equity and Diversity
- 2022 **Inclusive Excellence Summer Intensive**
NCSU Office for Institutional Equity and Diversity

- 2021-2022 **Teaching and Communication Certificate**
 NCSU Graduate School Office of Professional Development
 Workshops and development series completed: Accessibility in the Classroom;
 Question, Persuade, Refer - suicide prevention training; Professional Portfolio
 Design; Managing Conflict in the Classroom; Engaging Diverse Learners
- 2021 **Project SAFE Ally Training**
 North Carolina State University GLBT Center

INVITED TALKS

- Arcs and shards, or Noncrossing arc diagrams beyond type A and the shard intersection order*
- November 18, 2022 **Algebra, Combinatorics, and Number Theory Seminar**, DePaul University
- November 7, 2022 **Discrete CATS Seminar**, University of Kentucky
- October 26, 2022 **Discrete Math Seminar**, Kennesaw State University
- April 15, 2022 **Discrete Math Seminar**, Texas State University
- Noncrossing arc diagrams beyond type A*
- December 1, 2021 **Graduate Online Combinatorics Colloquium**, virtual
- November 20, 2021 **AMS Southeastern Sectional - Algebraic Combinatorics Special Session**, virtual
- November 13, 2021 **Triangle Area Graduate Mathematics Conference**, Duke University

GRADUATE COURSEWORK

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|---|-----------------------------------|
| * Teaching in the Math Department | * Mathematics for Social Justice |
| * Introduction to Complex Variables | * Abstract Algebra I & II |
| * Introduction to Cluster Algebras | * Analysis I & II |
| * Introduction to Manifold Theory | * Graph Theory |
| * Introduction to R/Python for Data Science | * Combinatorics I & II |
| * Introduction to Topology | * Computer Algebra I & II |
| * Set Theory and Foundations of Mathematics | * Combinatorics of Coxeter Groups |

SKILLS

- Educational Software** Proficient in Canvas, Gradescope, Moodle, Zoom
 Experience with Runestone Academy, Amplify Activity
 Builder, Desmos, Mathmatize, Doenet, Colleague.ai,
 WebAssign, Piazza, Quizlet
- Mathematical Packages** Proficient in LaTeX
 Experience with Maple, PreTeXt, Python, R, PreFigure
- Foreign Language** Proficient in Spanish

CONTRIBUTED TALKS

Counting over calculating

February 27, 2026 **Teaching Contemporary Mathematics Conference**, North Carolina
School of Science and Mathematics

On equivalent colorings of plane trees

January 5, 2023 **Joint Mathematics Meeting - AMS Special Session on Trees in
Many Contexts (an MRC session) II**, Boston, MA

Noncrossing arc diagrams beyond type A

March 26, 2022 **Graduate Student Combinatorics Conference**,
University of California San Diego, virtual

March 4, 2022 **CombinaTexas**, Texas A&M University

November 13, 2021 **Triangle Area Graduate Mathematics Conference**, Duke University

NCSSM TALKS AND SERVICE PRESENTATIONS

February, 2026 **JMM Shareback - Accessibility Made Easy**
Mathematics Department

August 7, 2024 **LaTeX & Overleaf Tutorial**
Mathematics Department

April 18, 2024 **Gradescope Lunch & Learn**
Mathematics Department

NCSU TALKS, PANELS, AND SERVICE PRESENTATIONS

October 28, 2022 **“Experiences in Research and Internships” Panel**
AMS Student Chapter

October 15, 2021 **“Research Opportunities in Graduate School” Presentation**
Department of Mathematics

August 10, 2021 **“New Graduate Student Orientation” Panel**
Department of Mathematics

May 12, 2021 **“What is a Qualifying Exam?” Panel**
Department of Mathematics

February 27, 2021 **“Prospective Student Weekend Virtual Campus Tour”**
Department of Mathematics

August 4, 2020 **“New Graduate Student Orientation” Panel**
Department of Mathematics

SELECTED CONFERENCES ATTENDED

- 2026 **Joint Mathematics Meetings**
Washington DC
- 2025 **MathFest**
Mathematical Association of America, Sacramento CA
- 2024, 2025 **Teaching Contemporary Mathematics**
North Carolina School of Science and Mathematics, Durham
- Triangle Lectures in Combinatorics**
- 2025 Duke University
- 2023, 2025 North Carolina State University
- 2022 University of North Carolina, Greensboro
- 2020 University of North Carolina, Charlotte
- 2019 North Carolina State University
- 2022 **Open Problems in Algebraic Combinatorics**
University of Minnesota
- 2021 **ParaDIGMS Conference**
American Mathematical Society, virtual
- 2021 **Graduate Student Combinatorics Conference**
University of Minnesota, virtual
- 2021 **CombinaTexas**
Texas A&M University, virtual
- 2021 **Combinatorial Algebra meets Algebraic Combinatorics**
Université du Québec à Montréal, virtual
- 2020 **Workshop for Inclusive Teaching Practices**
Duke University, NCSU, University of North Carolina Chapel Hill, virtual