

# Noelle Sawyer

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## Contact

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## Employment

**Southwestern University**, Georgetown, TX  
Assistant Professor of Mathematics August 2020 - Present  
Genevieve & Thatcher Atkin Junior Professor August 2023 - June 2026

## Education

**Wesleyan University**, Middletown, CT  
Ph.D. in Mathematics May 2020  
Advisor: David Constantine  
Thesis: Partial marked length spectrum rigidity of negatively curved surfaces  
  
**Vassar College**, Poughkeepsie, NY  
B.A. in Mathematics and History May 2014

## Research Interests

My research interests are in dynamics, geometry and topology. I am particularly interested in thermodynamic formalism, Riemannian geometry, and marked length spectrum rigidity.

## Papers

**Local product structure for equilibrium states of geodesic flows and applications.**  
With Benjamin Call, David Constantine, Alena Erchenko, and Grace Work  
Preprint. Posted to arXiv March 2024.  
**Unique equilibrium states for geodesic flows on flat surfaces with singularities.**  
With Benjamin Call, David Constantine, Alena Erchenko, and Grace Work  
*International Mathematics Research Notices*, September 2022.  
**Phase transitions for the geodesic flow of a rank one surface with nonpositive curvature.**  
With Keith Burns, Jérôme Buzzi, and Todd Fisher  
*Dynamical Systems*, June 2021.

## Math Community

**MAA-AWM Lecturer** Fall 2025 - Spring 2028  
**Big Ideas in Dynamics** Spring 2023 - Present  
An AIM Research Community.  
Co-organized with Benjamin Call.  
**Infinite Possibilities Conference** April 2025  
Plenary Speaker.  
**Math for All: Austin** April 2025  
Plenary Speaker.  
**Big Ideas in Dynamics and Geometry** September 2024  
A hybrid conference at UIC.  
Co-organized with Benjamin Call and Laura Schaposnik.

	<b>Mid-Atlantic Regional Math Alliance Conference</b>	April 2024
	Keynote Speaker. <b>A Word Problem</b>	September 2023
	A special session at Science Writers, co-organized with Sam Hansen, Kenna Hughes-Castleberry, and Sadie Witkowski.	
	<b>Underrepresented Students in Topology and Algebra Research Symposium (USTARS)</b>	March 2023
	Keynote Speaker.	
	<b>Math Equity Forum</b>	October 2022
	University of Toronto.	
	<b>Austin Math Teachers' Circle</b>	March 2022
	University of Texas at Austin.	
	<b>Hidden Norms Webinar</b>	February 2022
	Semi-Norm Speaker (Breaking Norms)	
	<b>Black in Math Week</b>	November 2020
	Co-organized with Marissa Loving, Candice Price, Dwight Williams II, Michole Enjoli, and more.	
	<b>Midwest Dynamical Systems Early Career Conference</b>	November 2020
	Co-organized with Ben Call, Ivan Chio, and Kitty Yang	
<b>Media</b>	<b>Focus on Diversity</b>	August 2024
	<i>A Conversation with Noelle Sawyer and Andrés Vindas Meleéndez</i>	
	An MAA Focus Article by Alicia Prieto-Langarica.	
	<b>A Black Mathematical History</b>	March 2024
	A film review in <i>Nature</i> .	
	<b>Mathematically Gifted and Black Honoree</b>	February 2024
	A profile for Black History Month. <b>Meet a Mathematician</b>	December 2023
	A video interview.	
	<b>A Call to Defend Bodily Autonomy in the Math Community</b>	March 2023
	Letter to the Editor in the AMS Notices.	
	<b>Modern Mathematics Confronts its White, Patriarchal Past</b>	August 2021
	An article in <i>Scientific American</i> .	
	Written By Rachel Crowell.	
	<b>Who Will Celebrate You?</b>	June 2021
	A blog post on the AMS inclusion/exclusion blog.	
	<b>The First Black in Math Twitter Event</b>	December 2020
	Appeared in MAA Math Values Blog and the NAM newsletter	
	Authored with Omayra Ortega.	
	<b>#BlackInMathWeek</b>	November 2020
	An episode of the podcast Relatively Prime.	
	Hosted with Michole Enjoli.	
<b>Mentoring</b>	<b>EDGE</b>	June 2025
	Real Analysis Instructor.	
	<b>Roots of Unity</b>	June 2024
	Geometry/Topology Mentor. <b>Honors Thesis Supervision</b>	Fall 2022 - Spring 2023
	<i>Orbits on Translation Surfaces: Introducing Barriers and Game-Building</i>	
	with Rowan Via.	
	<b>Independent Study</b>	Spring 2022
	<i>Math Communication</i>	
	with Emily Thompson.	
	<b>Mentor at Topology Students Workshop</b>	July 2020
	Georgia Institute of Technology	

**Directed Reading Program, Wesleyan University**  
Discrete Geometry  
Hyperbolic Geometry

Spring 2019  
Fall 2018

## Invited Talks

**Indiana MAA Sectional Meeting** April 2026  
Plenary Speaker.  
**Trinity University Majors' Seminar** February 2026  
**Rice University Math Colloquium** September 2025  
**Modern Mathematics Workshop at SACNAS** October 2024  
AIM invited speaker.  
**University of Texas at Austin Topology Seminar** April 2024  
**University of Wisconsin Madison Dynamics Seminar** Feb 2024  
**University of Illinois Chicago Dynamics Seminar** Feb 2024 **South Central**  
**Topology Conference** October 2023  
**Columbia University Geometry Seminar** April 2023  
**Columbia University Undergraduate Colloquium** April 2023  
**University of Houston Dynamics Seminar** March 2023  
**A Dynamical Weekend at Wesleyan** March 2023  
Wesleyan University.  
**George Mason University Geometry Seminar** November 2022  
**Women in Groups, Geometry, and Dynamics** June 2022  
*Special Session.* AWM Research Symposium.  
University of Minnesota.  
**Smith College Brown Bag Series** April 2022.  
**The College of New Jersey Colloquium** March 2022  
**OURFA<sup>2</sup>M<sup>2</sup> Our Stories** December 2021  
**Wake Forest University Colloquium** November 2021  
**Rice University Topology Seminar** April 2021  
**Indiana University Geometry Seminar** March 2021  
**Bryn Mawr Distressing Math Collective** March 2021  
**University of Washington Rainwater Seminar** February 2021  
**Cal State East Bay Colloquium** January 2021  
**Women of Color in Topology and Algebra** January 2021  
*AMS-AWM Special Session.* Joint Math Meetings.  
**Boston College Dynamics Seminar** October 2020  
**Graduate Student Online Anything Topology Seminar** April 2020  
**University of Virginia Geometry Seminar** February 2020  
**Fractal Geometry, Dynamics, and Applications** January 2020  
*AMS Special Session.* Joint Math Meetings. Denver.  
**Ohio State University Topology Seminar** November 2019  
**Yale University Geometry and Topology Seminar** September 2019  
**Midwest Dynamical Systems Early Career Conference** May 2019  
Ohio State University.  
**University of Hartford Undergraduate Colloquium** April 2019  
**Statistical and Geometrical Properties of Dynamical Systems** October 2018  
*AMS Special Session* San Francisco State University.

## Contributed Talks

**Talk Math with Your Friends** July 2020  
**Poster Presentations by Women Graduate Students** January 2020  
*AWM Workshop.* Joint Math Meetings. Denver.  
**Graduate Student Conference in Algebra, Geometry and Topology** June 2019

Temple University. Area and partial length spectrum data.	
<b>Graduate Student Topology and Geometry Conference</b>	March 2019
UIUC. Area and partial length spectrum data.	
<b>Graduate Student Seminar</b>	
Wesleyan University.	
- Ends of groups.	November 2019
- Building $\varepsilon$ -dense closed geodesics.	March 2019
- Fun with discrete geometry and polygonal curvature.	September 2018
- Geodesic currents and the boundary at infinity.	April 2018
- It's Chaotic: an introduction to topological entropy.	October 2017
- Hadamard's Theorem.	March 2017
- Power indices and the upcoming election.	February 2016
<b>Special Preliminary Examination.</b>	October 2017
Wesleyan University. The specification property and closed orbit measures.	

## Teaching

<b>Southwestern University</b>	
Modern Calculus I	
Topology	
Introduction to Statistics	
Real Analysis	
New Experiences in Research Design	
Algebraic Structures	
First Year Seminar: If Board Games Could Talk	
EQUIP 2022 and 2023	
<b>Instructor, Wesleyan University</b>	
Elements of Calculus Part I	Fall 2019
Elements of Calculus Part II	Spring 2018
Introductory Calculus II	Spring 2017
<b>Graduate Teaching Assistant, Wesleyan University</b>	
Discrete Math	Spring 2020
Differential Equations	Spring 2019
Math Workshop	Fall 2018 and Spring 2016
Vectors and Matrices	Fall 2017
Combinatorics	Fall 2016
Calculus I, Part II	Fall 2015
Calculus I, Part II	Spring 2015
Multivariable Calculus	Fall 2014
<b>Teaching Assistant,</b>	
<b>Wesleyan Center for Prison Education</b>	
Intermediate Algebra	Fall 2016
<b>Summer School Instructor,</b>	
<b>St. John's College, New Providence, The Bahamas.</b>	
Seventh Grade Math	June 2014, 2013, 2011, and 2010
<b>Head Supplemental Instruction Leader,</b>	
<b>Quantitative Reasoning Center, Vassar College.</b>	
Single Variable Calculus II	Spring 2014
Single Variable Calculus I	Fall 2013
<b>Supplemental Instruction Leader,</b>	
<b>Quantitative Reasoning Center, Vassar College</b>	
Single Variable Calculus II	Spring 2013

<b>Other Service</b>	<b>2025 Mathematical Congress of the Americas</b>	Sept 2024 - August 2025
	<b>Travel Grants Selection Committee</b>	
	American Mathematical Society	
	<b>Human Resources Board</b>	October 2023 - Present
	American Institute of Mathematics.	
	<b>Faculty Diversity, Equity, Inclusion and Belonging</b>	Fall 2021- Present
	Southwestern University.	
	<b>Publicity and Publication Committee</b>	August 2019 - August 2021
	National Association of Mathematicians.	
	<b>Directed Reading Program Committee</b>	September 2018 - May 2020
	Wesleyan University.	
	<b>Co-founder and Vice President</b>	September 2018 - May 2020
	AWM Grad Student Chapter, Wesleyan University.	
	<b>Co-organizer</b>	January 2019 - December 2019
	Graduate Student Seminar, Wesleyan University.	
	<b>Vice President</b>	September 2017 - July 2019
	AMS Grad Student Chapter, Wesleyan University.	
	<b>Career Panel</b>	April 2019
	<i>Beyond the Binary</i> conference, University of Hartford.	
	<b>Editorial Board</b>	June 2018 - January 2019
	MAD Pages, National Association of Mathematicians.	
	<b>Graduate Life After Vassar Panel</b>	September 2018
	LAVA and AWM, Vassar College.	
	<b>Graduate School Panel</b>	February 2018
	Physics and Math Club, Montclair State University.	
	<b>Graduate School Panel</b>	October 2017
	McNair Program, Wesleyan University.	
	<b>Graduate Student Working Group</b>	July 2016 - June 2017
	Wesleyan University.	
	<b>Treasurer</b>	July 2015 - June 2016
	Graduate Student Association, Wesleyan University.	
	<b>Speaker</b>	February 2016
	<i>Life After Vassar</i> by LAVA and AWM, Vassar College.	
	<b>Co-Chair</b>	Spring 2014
	Relay for Life Committee, Vassar College.	
<b>Other Conferences &amp; Workshops Attended</b>	<b>MAA Mathfest</b>	August 2022
	<b>Flexibility and rigidity in dynamical systems</b>	March 2022
	Simons Center for Geometry and Physics. Stony Brook, New York.	
	<b>MAA Mathfest</b>	August 2021
	<b>Joint Math Meetings</b>	January 2021
	<b>Paradigms: Diversity in Graduate Mathematical Sciences</b>	November 2020
	<b>Mastery Grading Conference</b>	June 2020
	<b>Joint Math Meetings</b>	January 2020
	Denver, Colorado.	
	<b>Workshop in Dynamical Systems and Related Topics</b>	Sept 2019, Oct 2018
	Pennsylvania State University.	
	<b>Women in Mathematics in New England</b>	September 2017-2019
	Smith College.	
	<b>AIM Workshop on Equilibrium States of Dynamical</b>	July 2019

<b>Systems Arising from Geometry.</b> American Institute of Mathematics.	
<b>Graduate Student Conference in Algebra, Geometry and Topology.</b> Temple University.	June 2017, 2019
<b>Midwest Dynamical Systems Early Career Conference</b> Ohio State University.	May 2019
<b>Graduate Student Topology and Geometry Conference</b> University of Illinois at Urbana Champagne.	March 2019
<b>Midwest/McGehee Dynamical Systems Conference</b> University of Minnesota.	November 2018
<b>AMS Fall Western Sectional Meeting</b> San Francisco State University.	October 2018
<b>Northeast Analysis Network Conference</b> University at Albany SUNY.	September 2018
<b>Topology Students Workshop</b> Georgia Institute of Technology.	June 2018
<b>Séminaire de Mathématiques Supérieures 2017</b> Contemporary Dynamical Systems. Université de Montréal.	July 2017
<b>Graduate Student Topology and Geometry Conference</b> Michigan State University.	April 2017