

# Noelle Sawyer

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**Employment** **Southwestern University**, Georgetown, TX  
Assistant Professor of Mathematics August 2020 - Present

**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 marked length spectrum rigidity, thermodynamic formalism, and Riemannian geometry.

**Papers** **Unique equilibrium states for geodesic flows on flat surfaces with singularities.**  
**With Benjamin Call, David Constantine, Alena Erchenko, and Grace Work**  
Appeared in 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  
Appeared in Dynamical Systems, June 2021.

**Math Community** **Big Ideas in Dynamics** Spring + Fall 2023  
An AIM Research Community, co-organized with Benjamin Call  
**A Word Problem** September 2023  
A special session at Science Writers, co-organized with Sam Hansen, Kenna Hughes-Castleberry, and Sadie Witkowski  
**Underrepresented Students in Topology and Algebra Research Symposium (USTARS)** March 2023  
Invited Faculty Speaker  
**Math Equity Forum** October 2022  
University of Toronto  
**Austin Math Teachers' Circle** March 2022  
University of Texas at Austin.  
**Hidden Norms Webinar** February 2022  
Semi-Norm Speaker (Breaking Norms).  
**Black in Math Week** November 2020  
Co-organized with Marissa Loving, Candice Price, Dwight Williams II, Michole Enjoli, and more

	<b>Midwest Dynamical Systems Early Career Conference</b> Co-organized with Ben Call, Ivan Chio, and Kitty Yang	November 2020
<b>Media</b>	<b>A Call to Defend Bodily Autonomy in the Math Community</b> Letter to the Editor in the American Mathematical Society Notices	March 2023
	<b>Modern Mathematics Confronts its White, Patriarchal Past</b> An article in Scientific American Written By Rachel Crowell	August 2021
	<b>Who Will Celebrate You?</b> A blog post on the AMS inclusion/exclusion blog	June 2021
	<b>The First Black in Math Twitter Event</b> Appeared in MAA Math Values Blog and the NAM newsletter Authored with Omayra Ortega.	December 2020
	<b>#BlackInMathWeek</b> An episode of the podcast Relatively Prime Hosted with Michole Enjoli	November 2020
<b>Invited Talks</b>	<b>South Central Topology Conference</b>	October 2023
	<b>Columbia University Geometry Seminar</b>	April 2023
	<b>Columbia University Undergraduate Colloquium</b>	April 2023
	<b>University of Houston Dynamics Seminar</b>	March 2023
	<b>A Dynamical Weekend at Wesleyan</b> Wesleyan University.	March 2023
	<b>George Mason University Geometry Seminar</b>	November 2022
	<b>Women in Groups, Geometry, and Dynamics</b> <i>Special Session.</i> AWM Research Symposium. University of Minnesota.	June 2022
	<b>Smith College Brown Bag Series</b>	April 2022.
	<b>The College of New Jersey Colloquium</b>	March 2022
	<b>OURFA<sup>2</sup>M<sup>2</sup> Our Stories</b>	December 2021
	<b>Wake Forest University Colloquium</b>	November 2021
	<b>Rice University Topology Seminar</b>	April 2021
	<b>Indiana University Geometry Seminar</b>	March 2021
	<b>Bryn Mawr Distressing Math Collective</b>	March 2021
	<b>University of Washington Rainwater Seminar</b>	February 2021
	<b>Cal State East Bay Colloquium</b>	January 2021
	<b>Women of Color in Topology and Algebra</b> <i>AMS-AWM Special Session.</i> Joint Math Meetings.	January 2021
	<b>Boston College Dynamics Seminar</b>	October 2020
	<b>Graduate Student Online Anything Topology Seminar</b>	April 2020
	<b>University of Virginia Geometry Seminar</b>	February 2020
	<b>Fractal Geometry, Dynamics, and Applications</b> <i>AMS Special Session.</i> Joint Math Meetings. Denver.	January 2020
	<b>Ohio State University Topology Seminar</b>	November 2019
	<b>Yale University Geometry and Topology Seminar</b>	September 2019
	<b>Midwest Dynamical Systems Early Career Conference</b> Ohio State University.	May 2019
	<b>University of Hartford Undergraduate Colloquium</b>	April 2019
	<b>Statistical and Geometrical Properties of Dynamical Systems</b> <i>AMS Special Session</i> San Francisco State University.	October 2018
<b>Contributed Talks</b>	<b>Talk Math with Your Friends</b>	July 2020
	<b>Poster Presentations by Women Graduate Students</b>	January 2020

*AWM Workshop.* Joint Math Meetings. Denver. June 2019  
**Graduate Student Conference in Algebra, Geometry and Topology**  
 Temple University. Area and partial length spectrum data.  
**Graduate Student Topology and Geometry Conference** March 2019  
 UIUC. Area and partial length spectrum data.  
**Graduate Student Seminar**  
 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  
**Special Preliminary Examination.** October 2017  
 Wesleyan University. The specification property and closed orbit measures.

## Teaching

**Southwestern University**  
 Modern Calculus I  
 Topology  
 Introduction to Statistics  
 Real Analysis  
 New Experiences in Research Design  
 Algebraic Structures  
 EQUIP 2022 and 2023

**Instructor, Wesleyan University**  
 Elements of Calculus Part I Fall 2019  
 Elements of Calculus Part II Spring 2018  
 Introductory Calculus II Spring 2017

**Graduate Teaching Assistant, Wesleyan University**  
 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

**Teaching Assistant,**  
**Wesleyan Center for Prison Education**  
 Intermediate Algebra Fall 2016

**Summer School Instructor,**  
**St. John's College, New Providence, The Bahamas**  
 Seventh Grade Math June 2014, 2013, 2011, and 2010.

**Head Supplemental Instruction Leader,**  
**Quantitative Reasoning Center, Vassar College**  
 Single Variable Calculus II Spring 2014  
 Single Variable Calculus I Fall 2013

**Supplemental Instruction Leader,**

**Quantitative Reasoning Center, Vassar College**  
 Single Variable Calculus II Spring 2013  
 Single Variable Calculus I Fall 2012

**Mentoring**

**Honors Thesis Supervision** Fall 2022 - Spring 2023  
*Orbits on Translation Surfaces: Introducing Barriers and Game-Building*  
 with Rowan Via

**Independent Study** Spring 2022  
*Math Communication*  
 with Emily Thompson

**Mentor at Topology Students Workshop** July 2020  
 Georgia Institute of Technology

**Directed Reading Program, Wesleyan University**  
 Discrete Geometry Spring 2019  
 Hyperbolic Geometry Fall 2018

**Other Service**

**Diversity, Equity, Inclusion and Belonging Task Force** Fall 2021- Present  
 Southwestern University

**Publicity and Publication Committee** August 2019 - August 2021  
 National Association of Mathematicians.

**Directed Reading Program Committee** September 2018 - May 2020  
 Wesleyan University.

**Co-founder and Vice President** September 2018 - May 2020  
 AWM Grad Student Chapter, Wesleyan University.

**Co-organizer** January 2019 - December 2019  
 Graduate Student Seminar, Wesleyan University.

**Vice President** September 2017 - July 2019  
 AMS Grad Student Chapter, Wesleyan University.

**Career Panel** April 2019  
*Beyond the Binary* conference, University of Hartford.

**Editorial Board** June 2018 - January 2019  
 MAD Pages, National Association of Mathematicians.

**Graduate Life After Vassar Panel** September 2018  
 LAVA and AWM, Vassar College.

**Graduate School Panel** February 2018  
 Physics and Math Club, Montclair State University.

**Graduate School Panel** October 2017  
 McNair Program, Wesleyan University.

**Graduate Student Working Group** July 2016 - June 2017  
 Wesleyan University.

**Treasurer** July 2015 - June 2016  
 Graduate Student Association, Wesleyan University.

**Speaker** February 2016  
*Life After Vassar* by LAVA and AWM, Vassar College.

**Co-Chair** Spring 2014  
 Relay for Life Committee, Vassar College.

**Conferences & Workshops Attended**

**MAA Mathfest** August 2022

**Flexibility and rigidity in dynamical systems** March 2022  
 Simons Center for Geometry and Physics. Stony Brook, New York.

**MAA Mathfest** 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> Denver, Colorado.	January 2020
<b>Workshop in Dynamical Systems and Related Topics</b> Pennsylvania State University.	Sept 2019, Oct 2018
<b>Women in Mathematics in New England</b> Smith College.	September 2017-2019
<b>AIM Workshop on Equilibrium States of Dynamical Systems Arising from Geometry.</b> American Institute of Mathematics.	July 2019
<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