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

The Bernoulli property for geodesic flow on flat surfaces
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

Big Ideas in Dynamics   Spring 2023 - Present
An AIM Research Community.
Co-organized with Benjamin Call.

Mid-Atlantic Regional Math Alliance Conference   April 2024
Keynote Speaker.

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
Keynote 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.	
	Midwest Dynamical Systems Early Career Conference	November 2020
	Co-organized with Ben Call, Ivan Chio, and Kitty Yang	

Media	**A Black Mathematical History**	March 2024
	A film review in *Nature*.	
	Mathematically Gifted and Black Honoree	February 2024
	A profile for Black History Month.	
	Meet a Mathematician	December 2023
	A video interview.	
	A Call to Defend Bodily Autonomy in the Math Community	March 2023
	Letter to the Editor in the AMS Notices.	
	Modern Mathematics Confronts its White, Patriarchal Past	August 2021
	An article in *Scientific American*.	
	Written By Rachel Crowell.	
	Who Will Celebrate You?	June 2021
	A blog post on the AMS inclusion/exclusion blog.	
	The First Black in Math Twitter Event	December 2020
	Appeared in MAA Math Values Blog and the NAM newsletter	
	Authored with Omayra Ortega.	
	#BlackInMathWeek	November 2020
	An episode of the podcast Relatively Prime.	
	Hosted with Michole Enjoli.	

Mentoring	**Roots of Unity**	June 2024
	Geometry/Topology Mentor.	
	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

Invited Talks	**University of Texas at Austin Topology Seminar**	April 2024
	University of Wisconsin Madison Dynamics Seminar	March 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^{2}M^2 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.

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 ε-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

Other Service

Human Resources Board	October 2023 - Present
American Institute of Mathematics.	
Faculty Diversity, Equity, Inclusion and Belonging	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
Joint Math Meetings	January 2021
Paradigms: Diversity in Graduate Mathematical Sciences	November 2020
Mastery Grading Conference	June 2020
Joint Math Meetings	January 2020

Denver, Colorado.

Workshop in Dynamical Systems and Related Topics	Sept 2019, Oct 2018

Pennsylvania State University.

Women in Mathematics in New England	September 2017-2019

Smith College.

AIM Workshop on Equilibrium States of Dynamical Systems Arising from Geometry.	July 2019

American Institute of Mathematics.

Graduate Student Conference in Algebra, Geometry and Topology.	June 2017, 2019

Temple University.

Midwest Dynamical Systems Early Career Conference	May 2019

Ohio State University.

Graduate Student Topology and Geometry Conference	March 2019

University of Illinois at Urbana Champagne.

Midwest/McGehee Dynamical Systems Conference	November 2018

University of Minnesota.

AMS Fall Western Sectional Meeting	October 2018

San Francisco State University.

Northeast Analysis Network Conference	September 2018

University at Albany SUNY.

Topology Students Workshop	June 2018

Georgia Institute of Technology.

Séminaire de Mathématiques Supérieures 2017	July 2017

Contemporary Dynamical Systems. Université de Montréal.

Graduate Student Topology and Geometry Conference	April 2017

Michigan State University.