Elizabeth Tatum

Contact Information

Department of Mathematics
University of Rochester
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Research Interests

algebraic topology, homotopy theory

Employment

University of Rochester
Visiting Assistant Professor — August 2026–present

University of Bonn
Postdoctoral Fellow — September 2023–July 2026

Stockholm University
Postdoctoral Fellow — September 2022–September 2023

Research Visits

Isaac Newton Institute — January 2025– February 2025
Spectral Methods in Algebra, Geometry, and Topology

Hausdorff Institute for Mathematics — September 2022– December 2022
Spectral Methods in Algebra, Geometry, and Topology

Education

University of Illinois at Urbana–Champaign
Ph.D. in Mathematics — August 2022
Advisor: Vesna Stojanoska

Rutgers University–New Brunswick
B.S. in Mathematics — May 2015
Honors: Cum Laude, High Honors in the major

Honors and Awards

AMS-Simons Travel Grant — August 2026- August 2028

Dr. Lois M. Lackner Mathematics Fellowship, UIUC — Spring 2022

Wolfgang Haken Prize in Geometry and Topology, UIUC — 2020 – 2021

List of Teachers Ranked Excellent, UIUC — Fall 2022, Spring 2021, Fall 2020, Spring 2020, Spring 2019, Fall 2017

Papers and Preprints

A Thom Spectrum Model for C_2-Equivariant Brown-Gitler Spectra
with Guchuan Li and Sarah Petersen
Proceedings of the American Mathematical Society,
Vol. 153, No. 12, Dec 2025, p. 5421–5435.

A Guide to Equivariant Parametrized Homotopy Theory
with Agnès Beaudry, Chloe Lewis, Clover May, and Sabrina Pauli
Topology and its Applications: Vol. 376, December 2025, 109449.

Splittings of Truncated Motivic Brown–Peterson Cooperations Algebras
with Jackson Morris and Sarah Petersen
Under consideration for Journal of Topology, two strongly positive referee reports.

Motivic K-Theory Cooperations over the Rationals
with Jackson Morris and Sarah Petersen
In progress, preprint available upon request.

Parametrized $\mathbb{F}_2$-Cohomology of $B_{C_2}O(1)$
Agnès Beaudry, Chloe Lewis, Clover May, and Sabrina Pauli
Submitted, September 2026.

A Spectrum-level Splitting of the $ku_{\mathbb{R}}$-Cooperations Algebra
with Guchuan Li and Sarah Petersen
Submitted, April 2025.

Research Talks

Union College Mathematics Conference	September 2026
Midwest Topology Seminar	February 2026
Binghamton Topology Seminar	September 2025
34th NRW Topology Meeting	November 2024
University of Virginia Topology Seminar	September 2024
CU Boulder Topology Seminar	February 2024
Münster Topology Seminar	December 2023
Topology Intercity Seminar (Utrecht and Radboud University)	December 2023
International Workshop on Algebraic Topology, Beijing	July 2023
Nordic Topology Conference, Trondheim	July 2023
Stockholm University Algebra and Geometry Seminar	February 2023
Notre Dame Topology Seminar	August 2022
New Directions in Group Theory and Triangulated Categories	August 2022
Conference on Homotopy Theory & its Applications to Arithmetic and Geometry	June 2022

University of Pennsylvania Homotopy Theory Seminar March 2022

University of Kentucky Topology Seminar February 2022

UC San Diego Topology Seminar January 2022

Chicagoland Topology Seminar November 2021

UCLA Topology Seminar October 2021

UIUC Topology Seminar May 2021

Selected Expository Talks

Max Planck Institute Unstable Homotopy Theory Reading Seminar
The E_2-Page of the Unstable Adams Spectral Sequence May 2024

electronic Computational Homotopy Theory Reading Seminar
The Connective Real K-Theory of Brown-Gitler Spectra February 2024

University of Bonn Synthetic Spectra Reading Seminar
Quivers and the Adams Spectral Sequence January 2024

electronic Computational Homotopy Theory Reading Seminar
Duality for Topological Modular Forms March 2023

electronic Computational Homotopy Theory Reading Seminar
Filtered Mahowald Invariants October 2022

MIT Talbot Workshop: Ambidexterity in Chromatic Homotopy Theory
Review of Chromatic Homotopy Theory October 2021

UIUC Graduate Student Homotopy Theory Seminar
The Telescope Conjecture March 2021

UIUC Graduate Student Homotopy Theory Seminar
Brown-Gitler Spectra and Their Applications November 2020

electronic Computational Homotopy Theory Reading Seminar
The Slice Filtration October 2020

UIUC Graduate Student Homotopy Theory Seminar
Splitting $BP\langle 1\rangle \wedge BP\langle 1\rangle$ at Odd Primes September 2019

electronic Computational Homotopy Theory Kan Seminar
Miller's "On Relations Between Adams Spectral Sequences" October 2019

UIUC Graduate Student Homotopy Theory Seminar
Whitehead's Theorem for Modules Over the Steenrod Algebra December 2018

UIUC Graduate Geometry/Topology Seminar
Topological K-Theory and the Hopf Invariant One Problem December 2018

UIUC Graduate Geometry/Topology Seminar
What is Group Cohomology? April 2018

UIUC Graduate Student Homotopy Theory Seminar

Oriented Ring Spectra and Formal Group Laws December 2017

Service

Association for Human Mathematics
Teaching Working Group Member September 2026– present

Undergraduate Research Mentor
Fixed Points of the Dual Steenrod Algebra July 2026– present

Review of Bachelors' and Masters' Theses 2024– present
second advisor for 4 bachelor's program theses and 2 master's program theses

paraDIGMS (Diversity in Graduate Mathematical Sciences Conference)
Panelist April 2021

Graduate Student Open House
Panelist March 2020

Graduate Student Topology and Geometry Conference
Co-organizer February 2018

UIUC AWM Peer Mentor Program
Peer Mentor Fall 2017

Teaching Experience (Rochester)

Math 236: Abstract Algebra I
Instructor of Record Fall 2026

Math 142: Calculus II
Course Coordinator Fall 2026

Math 210: Introduction to Financial Mathematics
Instructor of Record Spring 2026

Math 142: Calculus II
Instructor of Record Spring 2026

Math 142: Calculus II
Instructor of Record Fall 2025

Math 140: Precalculus
Instructor of Record Fall 2025

Teaching Experience (Bonn)

Undergraduate and Masters Seminar on Characteristic Classes
Instructor of Record Summer 2025

Masters Seminar on the Adams Spectral Sequence

Instructor of Record — Winter 2024

Undergraduate Seminar on Topological K-Theory
Instructor of Record — Winter 2024

Algebraic Topology II: Stable Homotopy Theory
Lecturer — Summer 2024

Equivariant Homotopy Theory
Assistant — Summer 2024

Algebraic Topology I
Assistant — Winter 2023

Seminar on Group Cohomology
Assistant — Winter 2023

Teaching Experience (UIUC)

Math 257 (Applied Linear Algebra)
Teaching Assistant — Fall 2021

Math 415 (Applied Linear Algebra)
Teaching Assistant — Spring 2021, Fall 2020, Spring 2020, Spring 2019
Head Teaching Assistant — Fall 2019

Math 234 (Business Calculus)
Teaching Assistant — Spring 2018

Math 241 (Calculus III)
Teaching Assistant — Summer 2018, Fall 2017, Spring 2017

Math 220 (Calculus I)
Teaching Assistant — Fall 2016, Spring 2016

Conferences Attended

Algebraic Structures in Topology
San Juan, Puerto Rico — June 2024

International Workshop on Algebraic Topology
Beijing, China — July 2023

Nordic Topology Conference
Trondheim, Norway — July 2023

Homotopy: Fruit of the Fertile Furrow
Isaac Newton Institute — June 2023

A Panorama of Homotopy Theory
Oxford University — June 2023

Conference on Homotopy Theory with Applications to Arithmetic and Geometry

Fields Institute — June 2022

EWM-EMS Summer School: Chromatic Homotopy Theory and Friends
Mittag-Leffler Institute — June 2022

Talbot Workshop: Ambidexterity in Chromatic Homotopy Theory
Massachusetts Institute of Technology — October 2021

South Central Topology Conference
Texas A & M University — September 2021

Midwest Topology Seminar
Wayne State University (virtual conference) — April 2021

Transatlantic Transchromatic Homotopy Theory Warm-up Day
Universität Regensburg (virtual conference) — May 2020

Midwest Topology Seminar
Wayne State University (virtual conference) — May 2020

Elliptic Cohomology Days
University of Illinois at Urbana-Champaign — June 2019

Midwest Topology Seminar
Michigan State University — May 2019

Midwest Topology Seminar
University of Illinois at Urbana-Champaign — February 2019

Chromatic Homotopy Theory: Journey to the Frontier
University of Illinois at Urbana-Champaign — May 2018

Midwest Topology Seminar
Indiana University — April 2018

Midwest Topology Seminar
Northwestern University — March 2018

Homotopy Theory: Tools and Applications
University of Illinois at Urbana-Champaign — July 2017