

SAMUEL TRIPP

Curriculum Vitae

100 Institute Road, Worcester, MA 01609 ◊ (774) · 239 · 8873

stripp@wpi.edu ◊ samueltripp.github.io

EDUCATION

Ph.D., Mathematics, *Dartmouth College*, Hanover, NH

September 2017–2022

Advisor: Ina Petkova

Dissertation: On Grid Homology for Lens Space Links

A.M. Mathematics

Spring 2019

B.A., Mathematics, *Williams College*, Williamstown, MA

August 2010–May 2014

Advisor: Allison Pacelli

Thesis: Primes in Arithmetic Progressions of Polynomials

OTHER WORKING EXPERIENCE

Eaton Vance, Boston, MA

August 2014 – February 2017

Research Associate, Bank Loan Group

PREVIOUS TEACHING EXPERIENCE

Dartmouth College, Hanover, NH; *Instructor of Record*

Probability

Spring 2022

Abstract Algebra

Summer 2020

Introduction to Calculus

Fall 2019

Dartmouth College, Hanover, NH; *Teaching Assistant*

Linear Algebra

Spring 2019

Calculus of Vector-valued Functions

Winter 2019

Calculus of Vector-valued Functions

Winter 2018

Accelerated Multivariable Calculus

Fall 2017

Williams College, Williamstown, MA; *Teaching Assistant*

Discrete Mathematics

Fall 2013

Discrete Mathematics

Spring 2012

Data Structures

Fall 2011

TEACHING INNOVATIONS AT WPI

Is Linear Algebra Useful for You?

First introduced in A Term 2023

Project in which students ask a peer who is further along in their major, someone who works in the field they want to go into, a professor in their field of study, and generative AI about how or if they use linear algebra, in the first week of term. Students report greater motivation and more targeted focus as a result of this project.

“Peer” assessment using generative AI

First introduced in B Term 2024

Critically assessing their peers work is one learning pathway in proof-based courses, but there are social dynamics that can hurt the effectiveness. Students task generative AI with constructing solutions to homework problems, then are graded on their “peer” assessment of these problems, giving them a limitless number of examples of proofs to critique, as well as reminding them that many large language models aren’t that good at proofs

Games in the Classroom

First introduced in B Term 2024

Group theory is full of technical definitions; students also need to have a conceptual definition that perhaps omits some technical details, but solidifies for them the “spirit” of the definition. We played Chopsticks and Jam/Tic-tac-toe to get students engaged and to initiate discussions of modular arithmetic and isomorphism, respectively.

WPI TEACHING EXPERIENCE

Worcester Polytechnic Institute, Worcester, MA

Assistant Teaching Professor 2022-2023

Assistant Professor of Teaching 2023-Present

Calculus 3 (MA 1023)

A Term 2023

Denksport (MA 1801)

B Term 2022

Matrices and Linear Algebra I (MA 2071) *A Term 2022, B Term 2022, A Term 2023, D Term 2024, A Term 2024*

Accelerated Matrices and Linear Algebra I (MA 2072)

C Term 2025

Matrices and Linear Algebra II (MA 2073)

Two sections C Term 2023; D Term 2025

Group Theory (MA 3823)

B Term 2025

Linear Models I (MME 526)

Fall 2024

Numbers, Polynomials, and Algebraic Structures (MME 529)

Late Spring 2023, Late Spring 2025

Discrete Mathematics (MME 531)

Late Spring 2024

UNDERGRADUATE PROJECTS - MQPS, IQPS, AND OTHER

Undergraduate Research Projects

p-Colorability Game on Knots with Joe Rader

Spring 2025

ADVISING EXPERIENCE

Mathematical Sciences Majors

- Class of 2028: one student
- Class of 2027: two students
- Class of 2026: three students
- Class of 2025: one student

Putnam (national mathematics competition) team coach

B Term 2022

Mathematical Sciences Minor Advisor

Fall 2022-Present

Peer Mentor Network Coordinator

Fall 2023 - Present

Prior to WPI

Directed Reading Program, Dartmouth College

Served as a mentor in program meant to increase mathematical access to stigmatized groups

Ahmed Naveed, Knot theory

Winter 2021

Katherine Woolfolk, Low-dimensional topology

Winter 2022

INDEPENDENT STUDY ADVISING

Algebraic Topology with Freud Oulon

Spring 2024

Group Theory with Freud Oulon

Fall 2024

Knot Theory with Joe Rader

Fall 2024

Algebraic Topology with Freud Oulon, MollyAnn Burkey

Spring 2025

Topology with Nihal Bangaru

C Term 2025

HONORS AND AWARDS RELATED TO TEACHING

Prior to WPI

Teaching Award Nominee, Guarini School, Dartmouth College 2022
Ken Bogart Teaching Award Honorable Mention, Dartmouth College Math Department 2020
Outstanding Graduate Student Teacher, Dartmouth Center for the Advancement of Learning 2018

TEACHING PROFESSIONAL DEVELOPMENT

Project NeXT 2024-2025
MAA Minicourse: An Actionable Approach to Alternative Grading August 2024
Learning with Stories: Storytelling and Reflection, In and Out of the Classroom February 2025
Morgan Center Pedagogy Champions, Inclusive Syllabus 2023-2024
Dartmouth Center for Advancement of Learning Future Faculty Teaching Series 2019

PUBLICATIONS

On the invariance of the Dowlin spectral sequence, with Z. Winkeler, submitted
Algebraic & Geometric Topology 24 (2024) 5123–5159. arXiv version: arXiv:2207.14415.
L-space knots with tunnel number > 1 by experiment, with C. Anderson, K. Baker, X. Gao, M. Kegel, K. Le, K. Miller, S. Onaran, G. Sangston, A. Wood, and A. Wright
Experimental Mathematics Volume 32 Issue 4 (2023) 600-614. arXiv version: arXiv:1909.00790.
Controlling the generic formal fiber of local domains and their polynomial rings, with P. Jiang, A. Kirkpatrick, S. Loepp, and S. Mack-Crane
Journal of Commutative Algebra, Vol.7, No.1, 241-264, 2015. pdf version.

PREPRINTS

On grid homology for lens space links: combinatorial invariance and integral coefficients.
arXiv version: arXiv:2110.00663.

PRESENTATIONS

Discrete Math Seminar, WPI November 2022
Joint Math Meetings, Special Session on Knots, Links, 3-Manifolds and 4-Manifolds April 2022
Binghamton University Graduate Combinatorics, Algebra, and Topology Conference November 2021
Dartmouth College Topology Seminar October 2021
Dartmouth Graduate Student Seminar Quarterly, 2017–2022
Joint Math Meetings, AMS Session on Undergraduate Research January 2014
in Algebra, Combinatorics, and Number Theory

PROFESSIONAL MEMBERSHIPS

American Mathematical Society (AMS) since Fall 2013
Mathematical Association of America (MAA) since Fall 2013

REFeree ACTIVITY

Pi Mu Epsilon Journal, 1 article

HONORS AND AWARDS

Hannah Croasdale Award Nominee, Guarini School, Dartmouth College 2022
Departmental Thesis Honors, Williams College 2014

SERVICE TO PROFESSION

Co-organized panel MAA Project NExT: Establishing Your Undergraduate Research Program at Joint Mathematics Meeting *January 2025*
Co-organizing panel MAA Project NExT Session: Navigating Institutional Service at MAA MathFest *August 2025*

SERVICE TO DEPARTMENT AND UNIVERSITY

Undergraduate Committee member, Mathematical Sciences Department *AY 2022-2023*
Diversity, Equity, and Inclusion Committee, Mathematical Sciences Department
Member *AY 2022-2023*
Chair *AY 2023-2024, AY 2024-2025*
Math Meet Committee, Mathematical Sciences Department
Member *AY 2023-2024*
Chair *AY 2024-2025*
Assistant Professor Teaching Hiring Committee *AY 2024-2025*
Organizer, Junior Faculty Mutual Mentorship Series *Spring 2025 - Present*
Organizer, Teaching Seminar, Mathematical Sciences Department *Spring 2025 - Present*
President's IQP Awards reviewer *AY 2022-2023*
Co-organizer, Topology Reading Seminar, Dartmouth College *2018-2022*
Organizer, Graduate Student Seminar, Dartmouth College *2018-2022*
Department Representative, Graduate Student Council, Dartmouth College *2018-2021*
Participant, Graduate Student Council Academic Committee, Dartmouth College *2018-2021*

SERVICE TO STUDENTS AND THE COMMUNITY

Mathematical Sciences Peer Mentor Network Coordinator *2023-2025*
Sonia Kovalevsky Day Volunteer, WPI *Spring 2023, 2024, 2025* **Sonia Kovalevskaya Day**, Dartmouth College *May 2020, postponed*
Co-organized workshop for middle- and high-school female students with N. Lafrenière, T. Moloney, R. Orellana, L. Petto
Exploring Mathematics, Dartmouth College *Summer 2019*
Planned, organized, and conducted two week-long math programs for middle- and high-school students on *The Mathematics of Games and Networks*