Addison Howe
Northwestern University – PhD Candidate, Applied Math
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Education

(2020–present) PhD Candidate, Applied Mathematics – Northwestern University
Department of Engineering Sciences and Applied Mathematics. Advisor: Madhav Mani, PhD. GPA: 3.936

(2021) M.S. Applied Mathematics – Northwestern University

(2018) B.A. Mathematics, teaching concentration – UC Berkeley
GPA: 3.832

Teaching

(Spring, 2024) Northwestern University, Engineering Sciences and Applied Math – Teaching Assistant
TA for Mathematics of Life: From Physics to data-driven modeling (taught by Madhav Mani)

(2021–2022) Northwestern University, Engineering Sciences and Applied Math – Teaching Assistant
TA for Engineering Analysis (Differential Equations) and Multivariable Calculus.

(2019) Humphreys University – Adjunct Instructor
Summer instructor for Math 101: College Algebra.

(2016–2018) UC Berkeley EECS Dept – Undergraduate Student Instructor
Undergraduate TA and grader for Berkeley's intro computer science course, CS10.

Work Experience

(2020–present) Northwestern University, School of Professional Studies – Math Place Tutor

(2018–2020) Private Math Tutor

(2016–2018) UC Berkeley Student Learning Center – Math Tutor & Study Group Leader

Awards

(2022) Outstanding Teaching Assistant Award, Northwestern University, ESAM

Affiliations

(2021–present) Society for Industrial and Applied Mathematics
Northwestern SIAM Student Chapter

Projects

Learning geometric models for developmental dynamics.

A modeling framework rooted in Dynamical Systems Theory that uses machine learning techniques to infer Waddington-like landscape models of cellular differentiation. Manuscript in press at PRX [1]. Current version available on bioRxiv. Code available on GitHub.

Bridging metagenomics and metabolic dynamics in soil.

An exploration of the relationship between metagenomic variation and metabolic dynamics.

Publications

[1] **Howe, A.**, Mani, M., "Learning geometric models for developmental dynamics". *Phys. Rev. X* (Aug. 2025). URL: https://link.aps.org/doi/10.1103/8vpj-bj7d.