Connor J. Haynes

Department of Mathematics, University of Western Ontario, London, ON, Canada.
Email: chayne8@uwo.ca **Website:** https://connorjhaynes.github.io/

Mathematical interests

Broadly: Combinatorics, geometry, and algebra with an focus on computational approaches and the application of these tools to problems in the sciences.

Specifically: Matroid theory, polyhedral geometry, combinatorics of generic sparse systems, Combinatorial Hodge Theory, geometric tomography, and the application of these tools to problems in the sciences.

Education

MSc in Mathematics, University of Western Ontario — Aug 2026 – Aug 2028
Advisor: Taylor Brysiewicz
Thesis title (in progress): *Algebraic matroids of generic sparse systems*

BSc in Mathematics, Georgia Institute of Technology — May 2022 – May 2025

Writings

Algebraic Curves
Solutions to Exercises from Fulton's *Algebraic Curves* (link) — 2026

Commutative Ring Theory
Solutions to Exercises from Matsumura's *Commutative Ring Theory* (link) — 2026

Introduction to the Orlik-Solomon algebra
Expository notes on Orlik-Solomon algebras in geometry and combinatorics (link) — 2025

Moduli spaces - A collection of interesting examples
Expository notes on moduli spaces targeted towards undergraduates (link) — 2025

Workshops

University of Notre Dame
Center for Mathematics at Notre Dame: Thematic Program in Algebraic Combinatorics and Applications — June - July 2026

Georgia Institute of Technology
Future of Macaulay2 Workshop — May 2026

University of Notre Dame
Center for Mathematics at Notre Dame: Thematic Program in Discrete Groups in Topology and Algebraic Geometry — June - July 2025

Louisiana State University
RTG Summer Workshop: Matroids and Hyperplane Arrangements — May 2025

Teaching

Graduate Teaching Assistant, University of Western Ontario
MATH 1228 - Methods of Finite Mathematics — 2026

Student Assistant, Georgia Institute of Technology
MATH 3012 - Applied Combinatorics — 2025

Undergraduate Teaching Assistant, Georgia Institute of Technology
MATH 1552 - Integral Calculus — 2025
MATH 1554 - Linear Algebra — 2024

Service

Mentor, University of Western Ontario
Undergraduate Directed Reading Program 2026

Programming languages

`Julia`, `Macaulay2`, and `Sage` with emphasis on problems in algebraic geometry and combinatorics.
`Python` with emphasis on modelling and functional scripting.