Elaine Herrera

University of Groningen · Groningen, The Netherlands · Citizenship: Canadian
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Research Interests

Probability theory, random trees, random graphs, probabilistic combinatorics

Education and Employment

Ph.D. Candidate in Probability, *University of Groningen* October 2024 – Present
- Supervisor: Dr. Serte Donderwinkel

Instructor II, *University of Winnipeg* January 2022 – Present
- Dept. of Mathematics and Statistics: taught first and second year undergraduate courses
- Started as a Contract Instructor and then was hired as Instructor II in July 2022
- September 2024 – Present: Educational leave to pursue doctoral studies at the University of Groningen

Sessional Instructor, *Univerity of Manitoba* September 2021 – May 2022
- Dept. of Mathematics: Contract Instructor and Lab Coordinator for first year undergraduate courses

M.Sc. Probability and Statistics, *McGill University* September 2019 – October 2021
- Thesis: Map Enumeration and Phase Transitions of Random Graphs
- Supervisor: Prof. Dr. Louigi Addario-Berry
- GPA: 4.0/4.0

B.Sc. Mathematics Honours, *University of Manitoba* September 2014 – June 2019
- First Class Honours, Dean's Honour Roll
- GPA: 4.47/4.5

Publications

Preprints

1. Caelan Atamanchuk, Simon Briend, Serte Donderwinkel, Elaine Herrera. *Packing and covering random trees* (2026), arXiv:2610.40150.
2. Caelan Atamanchuk, Simon Briend, Serte Donderwinkel, Elaine Herrera. *The packing and covering number of trees are local* (2026), arXiv:2610.37539.

Popular Science Publications

1. Elaine Herrera. *Networks and randomness, it's all connected* (2026), NetworkPages, networkpages.nl/networks-and-randomness-its-all-connected.

Teaching Experience

University of Groningen
Teaching Assistant November 2024 – Present
- WBMA024-05: Probability and Measure (×2)
- WBMA052-05: Introduction to Graph Theory (×3)
- WMMA046-05: Combinatorial Mathematics B

University of Winnipeg
Instructor January 2022 – August 2024
- MATH-0031: Math Access for Early/Middle Years Teachers (×2)
- MATH-1103: Calculus I (×2)
- MATH-1301: Applied Mathematics for Business and Administration (×2)
- MATH-2203: Linear Algebra II (×2)

- MATH-2903: Math for Early/Middle Years Teachers I (×6)
- MATH-2904: Math for Early/Middle Years Teachers II (×4)

University of Manitoba

Instructor August 2021 – May 2022

- MATH 1500: Introduction to Calculus
- MATH 1700: Calculus 2 (×2)

Lab Coordinator August 2021 – December 2021

- MATH 1300: Vector Geometry and Linear Algebra

Teaching Assistant July 2017 – May 2019

- MATH 1240: Elementary Discrete Mathematics (×8)
- MATH 2030: Combinatorics 1 (×3)
- MATH 2070: Graph Theory 1
- STAT 2000: Basic Statistical Analysis 2 (×2)
- Mathematics Help Centre Tutor (various courses)

McGill University

Teaching Assistant September 2019 – December 2020

- MATH 139: Calculus 1 with Precalculus
- MATH 141: Calculus 2
- MATH 203: Principles of Statistics 1

Student Supervision

Savely Yakovlev, *Bachelor's Thesis* April – July 2026

Select Awards

NSERC CGRS – Doctoral 2026 – 2028
- $100,000

Mitacs Research Training Award 2020
- $6,000

Murata Family Fellowship 2019
- $4,240

NSERC Alexander Graham Bell CGS – Master's 2019 – 2020
- $17,500

NSERC Undergraduate Student Research Award 2017 – 2019
- $6,000 (×2), $7,000

Philip Hultin Pedagogy Undergraduate Research Award 2019
- $7,000 (*declined)*

David E. Dobbs Scholarship in Mathematics 2018
- $2,375

Faculty of Science Undergraduate Research Award 2017 – 2018
- $6,500 (×2) (*declined)*

Pedagogical Experience

Membership

- Cognitive Science in Post-Secondary Mathematics January 2024 – September 2024
- First Year Math & Stats in Canada (FYMSiC) December 2021 – September 2024

Projects

A Pilot Investigation of Interteaching, *University of Manitoba* January – April 2022

- Objective: Investigate interteaching in mathematics education and virtual classrooms
- Supervisor: Dr. Xinli Wang

MATH 1240 Course Development, *University of Manitoba* May – August 2019

- Objective: Develop instructional resources and pedagogical materials for an introductory discrete mathematics course
- Supervisor: Dr. Michelle Davidson

Educational Outreach

Served in an organizational capacity for all listed outreach, except for those marked with *.

- Science is Wonderful!, *mathematics booth* March 2026
- Science LinX, *classroom activity** January 2026
- University of Winnipeg STEM Days, *classroom activity* May 2024
- Science Rendezvous, *mathematics booth* May 2023
- Science Rendezvous, *classroom activity* May 2018
- Let's Talk Science, *volunteer** January 2015 – August 2017

Workshops

- FYMSiC: Why are we teaching mathematics today?, *Online*, May 2024
- FYMSiC: Dyscalculia & Math Anxiety, *Institute for the Study of University Pedagogy* October 2023
- FYMSiC: Teaching, The Backstage of Our Courses, *Online* May 2023
- FYMSiC: Everyday Life of a Post-secondary Math & Stats Practitioner, *Online* May 2022
- Winnipeg School Division Math Teacher Workshop, *University of Manitoba* June 2019
  (Presented a talk: *Transitioning between Pre-calculus and Calculus)*

Academic Service

Bernoulli Institute PhD Council, *Secretary* January 2026 – Present

NetworkPages, *Member of the Editorial Board* April 2025 – Present

University of Winnipeg Open House, *Mathematics Representative* March 2024

University of Winnipeg Departmental Review Committee, *Member* August 2023 – August 2024

University of Winnipeg Program Advising, *Mathematics Advisor* July 2023 - August 2024

University of Winnipeg Mathematics Entrance Exams, *Coordinator* August 2022 – August 2024

Winnipeg Schools' Science Fair, *Specialised Awards Judge* May 2023 – May 2024

University of Manitoba Eigenclub, *Communications Chair* September 2017 – August 2018

University of Manitoba Open House, *Mathematics Student Representative* March 2018

Research Visits

UniDistance, *Brig, Switzerland* September 2025

- (5 days) Hosted by Dr. Simon Briend

Conferences Attended

BIRS Workshop: Discrete and Continuous Random Trees, *Casa Matemática Oaxaca* October 2026

Discrete and Continuous Random Trees: Student Workshop, *Ciudad Universitaria* September 2026

ISM Summer School: Recent Advances in Probability and Combinatorics, *UQAM* June 2026

Phase Transitions in Combinatorics, Algorithms and Probability, *CWI* May 2026

Workshop on Randomness and Discrete Structures, *University of Groningen* April 2025

Oxford Probability Workshop: Random Discrete Structures, *University of Oxford* March 2025

Conference annuelle du GdR Branchement, *Université Paris-Saclay* January 2025

Heidelberg Laureate Forum, *Online* September 2021

SAMSI Combinatorial Probability Virtual Workshop, *Online* January 2021

Online Open Probability School, *Online* May – August 2020

Celebrating Women in Mathematics, *University of Manitoba* March 2019

- Panel Speaker

Canadian Undergraduate Mathematics Conference, *Université de Montréal* July 2017

Project Experience

Mitacs Research Training Award, *McGill University* August – December 2020
- Project: Giant Components in Minor-Closed Families of Graphs
- Supervisor: Prof. Dr. Louigi Addario-Berry

NSERC USRA, *University of Manitoba* May – August 2019
- Project: Branched Covers and Fundamental Groups of Knot Complements
- Supervisor: Prof. Dr. Adam Clay

NSERC USRA, *University of Manitoba* May – August 2018
- Project: Analytic Methods in Combinatorics
- Supervisor: Dr. Karen Gunderson

NSERC USRA, *University of Manitoba* May – August 2017
- Project: Combinatorial Group Testing
- Supervisor: Dr. Karen Gunderson

Affiliations

The Association for Human Mathematics (AHM), *Member* September 2026 – Present

Women+ in Mathematics, *Regular Attendee* October 2024 – Present

Canadian Mathematical Society, *Member* September 2019 – October 2021

Languages

English: Fluent
Tagalog: Fluent