

# Erik Holmes

## Curriculum Vitae

Dept. of Mathematics, Bahen Building  
40 St. George Street  
Toronto, ON, M5S 2E4 Canada  
✉ eholmes@math.toronto.edu  
🌐 <https://erikholmesmath.com>

### Citizenship

Canadian, United States Permanent Resident.

### Education

- Aug 2021 **Ph.D. in Mathematics**, *University of Hawaii at Manoa*.  
Dissertation: *The Shape of Pure Prime Degree Number Fields*  
Advisor: Rob Harron
- May 2018 **M.A. in Mathematics**, *University of Hawaii at Manoa*.
- May 2014 **B.S. in Mathematics**, *Boise State University*.

### Employment

- Sept 2023-present **Postdoctoral Fellow**, *University of Toronto*.  
Toronto, ON, Canada
- Sept 2021-Aug 2023 **Postdoctoral Associate**, *University of Calgary*.  
Calgary, AB, Canada

### Research Interests

Algebraic number theory, Arithmetic statistics, Arithmetic dynamics, Computational number theory

### Publications/Preprints

- 2023 **Adelic perturbation of rational functions and applications**, (*submitted*), with Félix Baril Boudreau and Khoa Nguyen.  
<https://arxiv.org/pdf/2307.07910.pdf>
- 2022 **On the shapes of pure prime degree number fields**, (*submitted*).  
<https://arxiv.org/pdf/2209.10638.pdf>
- 2021 **Shapes of pure prime degree number fields**, ProQuest Dissertations Publishing, 2021. 28718070.  
(Dissertation)
- Category, measure, and forcing: Set theory lecture notes**, with Sam Coskey, Open Math Notes, American mathematical society.
- 2017 **Sorting permutations: Games, genomes, and cycles**, with K. Adamyk, G. Mayfield, D.J. Moritz, and M. Scheepers, B. Tenner, *Discrete Mathematics, Algorithms and Applications*.
- 2016 **Maximal Waring Ranks of Monomials and Sums of Coprime Monomials**, with P. Plummer, J. Siegert, Z. Teitler, *Communications of Algebra*.

### Conferences/Workshops

- Apr. 2023 **Arithmetic, Algebra, and Algorithms**, *Edinburgh, Scotland*.
- Apr. 2023 **Alberta Number Theory Days XIV**, *Banff, AB, Canada*.
- Oct. 2022 **AMS western sectional meeting**, *Salt Lake City, UT*.  
Invited speaker: Arithmetic Dynamics special session
- Sept. 2022 **A celebration of analytic number theory, a conference in honor of Andrew Granville**, *Montreal, QB, Canada*.
- Aug. 2022 **Specialization and Effectiveness in Number Theory**, *Banff, AB, Canada*.
- June 2022 **Equidistribution and Arithmetic Dynamics**, *Stillwater, OK*.

- Nov. 2021 **Alberta Number Theory Days (Hybrid)**, *Banff, AB, Canada.*
- Sept. 2020 **Front Range Number Theory Days**, *Virtual.*
- Sept. 2020 **Palmetto Joint Arithmetic, Modularity, and Analysis Series (PAJAMAS)**, *Virtual.*
- Sept. 2020 **Heilbronn Annual Conference 2020**, *Virtual.*
- April 2020 **Arithmetic, algebra, and algorithms: celebrating the mathematics of Hendrik Lenstra**, *Edinburgh, Scotland.*  
postponed...TBD
- Apr. 2020 **Front Range Number Theory Days**, *Virtual.*
- Jan. 2020 **Joint Math Meetings**, *Denver, CO.*
- Mar. 2019 **Hawaii Number Theory conference (HINT)**, *Honolulu, HI.*
- Jan. 2019 **Joint Math Meetings**, *Baltimore, MD.*  
 Invited speaker: Arithmetic Statistics special session
- Jul. 2018 **Canadian Number Theory Association**, *University of Laval.*
- Jun. 2018 **Communicating Math Effectively**, *University of Washington.*
- Mar. 2018 **Arizona Winter School: Iwasawa Theory**, *Tucson, Az.*
- Aug. 2016 **Sage Days 81**, *Honolulu, HI.*
- Dec. 2015 **RTG Workshop in Arithmetic Dynamics**, *University of Michigan.*
- Jan. 2015 **Joint Math Meetings**, *San Antonio, TX.*
- Jan. 2014 **Joint Math Meetings**, *Baltimore, MD.*

---

## Teaching Experience

### University of Toronto

Math 135 **Calculus I**, Fall 2023.

### University of Calgary

Math 211 **Linear Methods I**, Spring 2023.

Math 275 **Calculus for Engineers and Scientists**, Fall 2022.

Math 265 **University Calculus I**, Fall 2021.

### University of Hawaii

Math 134 **Precalculus: Elementary Functions**, Fall 2020.

Math 216 **Applied Calculus II**, Spring 2020.

Math 161 **Precalculus and Elements of Calculus**, Fall 2018.

Math 242 **Calculus II**, Summer 2017.

Math 203 **Business Calculus**, Summer 2015.

### University of Hawaii (Teaching Assistant)

Math 331 **Introduction to Real Analysis**, Fall 2019.

Math 241 **Calculus I**, Spring 2019, Spring 2016.

Math 100 **Survey of Mathematics**, Spring 2018, Fall 2017.

Math 242 **Calculus II**, Spring 2017.

Math 215 **Applied Calculus I**, Fall 2016, Fall 2015.

Math 140 **Precalculus: Trigonometry and Analytic Geometry**, Fall 2016, Spring 2015, Fall 2014.

---

## Service/Other

2022- **Journal Referee.**

2023 **Founder/Organizer**, *Math writing cafe.*

Co-founded and led the "Math Writing Cafe," a weekly event designed to foster a sense of community among postdocs and graduate students while promoting academic writing and productivity.

2023 **Conference organization**, *Alberta Number Theory Days XIV.*

Together with a PhD student from University of Alberta and a postdoc from Lethbridge I organized the 14th iteration of ANTD; this involved the successful acquisition of funding through PIMS.

- 2022-23 **Co-supervision of Masters Student**, University of Calgary.  
I helped supervise a masters student on a project in algebraic number theory. Specifically, the student was studying an analogue of the negative Pell equation over function fields.
- 2022 **Examiner on PhD committee**, University of Calgary.  
Served as an examiner for a PhD proposal in computational number theory.
- 2016–2019 **Be a Scientist Night**, *Institute for Human Services*, Honolulu, HI.  
Annual outreach event for underprivileged children; offering a wide array of activities and experiences aimed at igniting the students enthusiasm for technology, science, and mathematics.
- 2015-2019 **Tea time**, *University of Hawaii*.  
Created and organized a, twice weekly, tea time for graduate students and faculty.
- 2018–2019 **Secretary and Treasurer**, *AMS Student Chapter of Hawaii*, University of Hawaii.
- 2017 **Research group in arithmetic dynamics**, University of Hawaii.  
Worked with a team to implement the Doyle-Krumm algorithm in SageMath.

---

## Skills

**Computer Skills**, Programming in Python and Java; HTML, css,  $\text{\LaTeX}$ ; SageMath, Matlab, Magma.