

GREG KNAPP

<https://gsknapp.github.io/>

greg.knapp@ucalgary.ca

CURRENT EMPLOYMENT

University of Calgary

August 2023–Present

PIMS Postdoctoral Fellow

- Supervisor: Dang-Khoa Nguyen
- Current research topics: Thue equations, Diophantine inequalities, Diophantine tuples, polynomial root separation.

EDUCATION

University of Oregon

PhD, Mathematics

June 2023

Advisor: Shabnam Akhtari

Case Western Reserve University

Bachelor of Science, Mathematics

May 2017

Bachelor of Arts, Philosophy

May 2017

Master of Science, Mathematics

August 2017

Advisor: Colin McLarty

RESEARCH AND PRESENTATIONS

Research Papers

- Seda Albayrak, Samprit Ghosh, Greg Knapp, and Khoa D. Nguyen. On certain polytopes associated to products of algebraic integer conjugates, 2024. URL <https://arxiv.org/abs/2408.00250>
- Greg Knapp. The number of solutions to the trinomial Thue equation. *Functiones et Approximatio Commentarii Mathematici*, 69(2):247 – 270, 2023a. doi: 10.7169/facm/2093. URL <https://doi.org/10.7169/facm/2093>
- Greg Knapp. *Polynomial Root Distribution and Its Impact on Solutions to Thue Equations*. PhD thesis, University of Oregon, 2023b. URL <https://www.proquest.com/pqdglobal/docview/2842741022/fulltextPDF>
- Greg Knapp. Minkowski’s Linear Forms Theorem in Elementary Function Arithmetic. Master’s thesis, Case Western Reserve University, 2017. URL http://rave.ohiolink.edu/etdc/view?acc_num=case1495545998803274

Works In Progress

- A Family of Thue Equations Over Imaginary Quadratic Number Fields (with Eva Goedhart and Sumin Leem).

- Bipartite Diophantine Tuples (with Kin Ming Tsang and Chi Hoi Yip).

Invited Talks

- PIMS Postdoctoral Summit, University of Calgary, June 2024.
- Number Theory By Early Career Researchers, 2024 CMS Summer Meetings, University of Saskatoon, June 2024.
- Calgary Junior Math Contest Awards Ceremony, University of Calgary, June 2024
- PIMS CRG Seminar: L -functions in Analytic Number Theory, University of Lethbridge, April 2024.
- Alberta Number Theory Days, Banff International Research Center, March 2024.
- PIMS Postdoctoral Fellow Seminar, Online, October 2023.
- Oregon State University Number Theory Seminar, February 2023.
- University of British Columbia Number Theory Seminar, December 2022.
- Portland State University GDMNT, November 2022
- Oregon Number Theory Days, Oregon State University, February 2022.

Contributed Talks

- Number Theory by Early Career Researchers, 2023 CMS Winter Meetings, Montréal, QC, December 2023.
- Oregon Number Theory Days, Oregon State University, February 2023.
- New York State Regional Graduate Mathematics Conference, Syracuse University, April 2022.
- Undergraduate Poster Session, Joint Mathematics Meetings, Atlanta, GA, January 2017.
- Young Mathematicians Conference, Ohio State University, August 2016.

Links to Recorded Talks

- “Bounds on the Number of Solutions to Thue Equations.” PIMS CRG Seminar: L -functions in Analytic Number Theory. University of Lethbridge. Lethbridge, AB (April 2024). <https://www.mathtube.org/lecture/video/bounds-number-solutions-thue-equations-0>.
- “Exponential Relations Among Algebraic Integer Conjugates.” Alberta Number Theory Days. Banff International Research Center. Banff, AB (March 2024). <https://www.birs.ca/events/2024/2-day-workshops/24w2020/videos/watch/202403231735-Knapp.html>.

TEACHING EXPERIENCE

University of Calgary

August 2023–Present

PIMS Postdoctoral Fellow and Sessional Instructor

- Courses taught as instructor of record:

Course Title	Terms Taught
Linear Methods I	F23, W24, F24

- Earned the following badges from the University of Calgary Taylor Institute for Teaching and Learning.

Course Title	Month Completed
Scholarship of Teaching and Learning Foundations	June 2024
Developing Your Teaching Dossier	May 2024
Equity, Diversity, and Inclusion	April 2024

- Will complete the Postdoctoral Scholar Certificate in University Teaching and Learning when I complete the Theories and Practice badge in October 2024.

University of Oregon

August 2017–June 2023

Graduate Employee

- Courses taught as instructor of record:

Course Title	Terms Taught
University Mathematics I	Su18, Su19
College Algebra	F17
Elementary Functions	Sp18
Calculus for Business and Social Sciences II	F18
Differential Calculus	W20, F20
Integral Calculus	Sp20, W21, F21
Sequences and Series	Sp21
Fundamentals of Number Theory	W22, Sp22

- Courses for which I have been a teaching assistant:

Course Title	Terms as TA
College Algebra	Sp19
Calculus for Business and Social Sciences I	W18, F19, Sp23, W23
Calculus for Business and Social Sciences II	W19

- Other educational opportunities:

- “Preschool” Instructor: I co-ran a two week long problem solving session with incoming first-year PhD students to help them decide which classes to take during their first year.

Case Western Reserve University

January 2015–May 2017

Peer Tutor

- Tutored peers for for about 8 hours per week in the following classes:
 - Calculus I, II, III
 - Differential Equations
 - Linear Algebra
 - Abstract Algebra

- Intro to Logic
- Math Logic and Model Theory
- Assisted in the creation of the spring 2016 training sessions.

Boonshoft Museum of Discovery

Summer 2013, 2014, 2015, 2017

Summer Educator

- Created and taught three week-long summer camps: a math/logic/computer science camp, a computer programming camp, and a creativity/teamwork focused camp.
- Taught public programs: designed and demonstrated science experiments to the museums' guests
- Served as a camp counselor for summer campers (ages 6–14): escorted campers to and from classes and positively interacted with the campers within their classes.

MENTORING

PIMS First Year Interest Group

October 2023–Present

Diophantine Approximation

- Mentored a graduate-level reading project on Diophantine approximation.
- Met once every other week to discuss readings from Schmidt's *Diophantine Approximation* and Bilu and Bugeaud's *Démonstration du théorème de Baker-Feldman via les formes linéaires en deux logarithmes*.
- Continued working with these students on a research project on a generalization of Diophantine m -tuples, which we hope will produce a paper in winter 2025.

University of Oregon Directed Reading Program

January 2023–April 2023

Continued Fractions

- Mentored an undergraduate reading project on the measure theory of continued fractions.
- Met once per week with my student to discuss the second half of A. Khichin's *Continued Fractions*.
- Advised the student's 20 minute presentation on Khinchin's Theorem.

University of Oregon Directed Reading Program

January 2020–April 2021

Formal Logic

- Mentored an undergraduate reading project in formal logic, ranging from the Gödel's Incompleteness Theorem to subsystems of Peano Arithmetic.
- Met roughly once per week with my student January–March 2020 and July 2020–December 2022.
- Student read selections from chapters 1, 2, and 4 of Goldstern and Judah's *The Incompleteness Phenomenon* and from chapter 1 of Hájek and Pudlák's *Metamathematics of First-Order Arithmetic*.
- Student gave a 20 minute presentation on the first-order system of Peano Arithmetic.

University of Oregon Department of Mathematics
First-Year Mentor

August 2019–June 2023

- Mentored first-year mathematics graduate students.
- Met formally once per quarter and informally more frequently with my mentees to help them during their first year of graduate school.

SERVICE

Outreach

- University of Calgary Math Nite
Volunteer September 2023–Present
- University of Oregon AWM Graduate Student Chapter
Co-chair of the K-12 Outreach Committee August 2019–June 2023
- Boonshoft Museum of Discovery
Camp Counselor June/July 2012 and July 2016

Leadership

- 2025 Alberta Number Theory Days
Co-organizer September 2024–Present
- University of Calgary Number Nosh Seminar
Organizer September 2023–Present
- University of Oregon Graduate Student Teaching Seminar
Co-organizer December 2019–March 2023
- University of Oregon AMS Graduate Student Chapter
Co-founder and Secretary July 2020–October 2022
- University of Oregon Student Number Theory Seminar
Organizer March 2021–September 2022
- University of Oregon Math Department
Elected Student Representative to the Graduate Affairs Committee August 2019–June 2021

Refereeing

- Research in Number Theory (1 paper refereed)
- Acta Arithmetica (1 paper refereed)
- Periodica Mathematica Hungarica (1 paper refereed)

HONORS AND AWARDS

University of Calgary Students' Union Teaching Excellence Award nominee for teaching excellence in my winter 2024 Linear Methods I class.

Anderson Graduate Teaching Award for teaching dedication and excellence as a graduate student.

John Schoff Millis Award for the senior with the best academic record in the College of Arts and Sciences at CWRU.

Outstanding Poster Award for the top 10% of poster presentations in the Undergraduate Poster Session of the Joint Mathematics Meetings, 2017.

Dean's High Honors (8 semesters) at CWRU.

Case Alumni Association Junior-Senior Scholarship recipient.