

GREG KNAPP

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EDUCATION

Case Western Reserve University

August 2013–August 2017

Bachelor of Science, Mathematics

May 2017

Bachelor of Arts, Philosophy

May 2017

Master of Science, Mathematics

August 2017

Thesis: “Minkowski’s Linear Forms Theorem in Elementary Function Arithmetic”

Advisor: Colin McLarty

Overall GPA: 4.0

University of Oregon

August 2017–Present

Candidate: PhD, Mathematics

Expected Graduation: June 2023

Advisor: Shabnam Akhtari

Overall GPA: 4.10

RESEARCH AND PRESENTATIONS

Research Papers

- “The Number of Solutions to the Trinomial Thue Equation.” Accepted for publication in *Functiones et Approximatio Commentarii Mathematici*. Preprint available at <https://arxiv.org/abs/2210.09631>.
- “Minkowski’s Linear Forms Theorem in Elementary Function Arithmetic.” Electronic Thesis or Dissertation. Case Western Reserve University, 2017. *OhioLINK Electronic Theses and Dissertations Center*. <https://etd.ohiolink.edu/>

Upcoming Talks

- “Bounds on the Number of Solutions to Thue’s Inequality.” University of British Columbia Online Number Theory Seminar. Vancouver, British Columbia (December 2023).

Previous Research Talks

- “Bounds on the Number of Solutions to Thue’s Inequality.” Portland State University GDMNT. Portland, Oregon (November 2023).
- “An Improvement on a Gap Principle Counting Technique and Some Consequences.” New York State Regional Graduate Mathematics Conference, Syracuse University, Syracuse, NY (April 2022).
- “An Improvement on a Gap Principle Counting Technique and Some Consequences.” Oregon Number Theory Days, Oregon State University, Corvallis, OR (February 2022).
- “Convex Geometry and Minkowski’s Linear Forms Theorem in Elementary Function Arithmetic.” Master’s Thesis Defense, Case Western Reserve University, Cleveland, OH (April 2017).
- “Factorization Properties of $\text{Int}(\mathbb{Z})$ ” (with J. Salem and G. Scullard). Joint Mathematics Meetings—Undergraduate Poster Session, Atlanta, GA (January 2017).

- “Non-Unique Factorization, Elasticity, and Catenary Degree in $\text{Int}(\mathbb{Z})$.” Pi Mu Epsilon Meeting, Case Western Reserve University, Cleveland, OH (September 2016).
- “Factorization Properties of $\text{Int}(\mathbb{Z})$ ” (with J. Salem and G. Scullard). Young Mathematicians Conference—Report Talk, The Ohio State University, Columbus, OH (August 2016).

Expository Talks

- “Quadratic Reciprocity via Lucas Polynomials.” Student Number Theory Seminar, University of Oregon, Eugene, OR (May 2022).
- “Galois Connections.” Student Number Theory Seminar, University of Oregon, Eugene, OR (February 2022).
- “Why The Golden Ratio is the Worst.” Math Slam Seminar, University of Oregon, Eugene, OR (October 2021).
- “An Introduction to Thue’s Inequality.” Student Number Theory Seminar, University of Oregon, Eugene, OR (October 2021).
- “Newton Polygons.” Student Number Theory Seminar, University of Oregon, Eugene, OR (April 2021).
- “Introducing and Visualizing the p -adic Numbers.” Student Number Theory Seminar, University of Oregon, Eugene, OR (January 2021).
- “How to Tell if a Number Field is Formally Real.” Student Number Theory Seminar, University of Oregon, Eugene, OR (November 2020).
- “Geometry of Numbers and Its Number Theoretic Applications.” Student Number Theory Seminar, University of Oregon, Eugene, OR (October 2020).
- “Dirichlet Series and Why the Sum of the Natural Numbers is (Not) $-1/12$.” Student Number Theory Seminar, University of Oregon, Eugene, OR (October 2020).
- “Introduction to the Weil Height.” Student Number Theory Seminar, University of Oregon, Eugene, OR (October 2020).
- “Why the Golden Ratio is the Worst: Approximation and Continued Fractions.” Student Number Theory Seminar, University of Oregon, Eugene, OR (January 2020).
- “The Basics of Modular Forms.” Student Number Theory Seminar, University of Oregon, Eugene, OR (June 2019).
- “The Geometry of Numbers and Minkowski’s Linear Forms Theorem.” Student Number Theory Seminar, University of Oregon, Eugene, OR (February 2019).
- “Galois Theory In Peano Arithmetic.” Student Number Theory Seminar, University of Oregon, Eugene, OR (May 2018).
- “Minkowski’s Convex Body Theorem in Elementary Function Arithmetic.” Graduate Notions Seminar, University of Oregon, Eugene, OR (November 2017).

TEACHING EXPERIENCE

University of Oregon

August 2017–Present

Graduate Employee

- Taught courses as both the instructor of record and as a teaching assistant.
- Courses for which I have been instructor of record:
 - Math 105—University Mathematics I
 - Math 111—College Algebra

- Math 112—Elementary Functions
- Math 242—Calculus for Business and Social Sciences II
- Math 251—Calculus I: Differentiation
- Math 252—Calculus II: Integration
- Math 253—Calculus II: Sequences and Series
- Math 347—Fundamentals of Number Theory I
- Math 348—Fundamentals of Number Theory II
- Courses for which I have been a teaching assistant:
 - Math 111—College Algebra
 - Math 241—Calculus for Business and Social Sciences I
 - Math 242—Calculus for Business and Social Sciences II
- 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

- Served as a peer tutor for about 8 hours per week.
- Tutored 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.
- Collaborated with a co-worker to create and teach the math portion of a week-long STEM camp.
- Taught several 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.
- Organized museum spaces (lab, staff room, classrooms).

MENTORING

University of Oregon Directed Reading Program
Formal Logic

January 2020–April 2021

- 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–Present.
- 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–Present

- Mentored first-year mathematics graduate students.
- Met formally once per quarter and informally more frequently with my mentees to ensure that they were doing well during their first year.

SERVICE AND MEMBERSHIPS

UO Graduate Student Teaching Seminar
Co-organizer

December 2019–Present

UO Graduate Student Chapter of the AWM
Member and Co-chair of the K-12 Outreach Committee

August 2019–Present

UO Graduate Student Chapter of the AMS
Co-founder, Secretary

July 2020–October 2022

UO Graduate Student Number Theory Seminar
Organizer

March 2021–September 2022

Periodica Mathematica Hungarica
Referee

January 2022–June 2022

UO Math Department Graduate Affairs Committee
Elected Student Representative

August 2019–June 2021

Boonshoft Museum of Discovery
Camp Counselor

June/July 2012 and July 2016

Cleveland School of the Arts
Math, Science, and Writing Tutor

August 2013–December 2013

HONORS AND AWARDS

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.

Member of the 2nd place team in the Ohio MAA Student Team Competition 2016.

Case Alumni Association Junior-Senior Scholarship recipient.