CECELIA HIGGINS

University of California, Los Angeles

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Research Interests

I am primarily interested in descriptive set theory and its connections with combinatorics, ergodic theory, and theoretical computer science.

Education

University of California, Los Angeles (UCLA)

- Ph.D., Mathematics (expected June 2025)
- Thesis advisors: Dr. Andrew Marks and Dr. Anton Bernshteyn
- M.A., Mathematics (2022)

Rutgers University, New Brunswick

• B.S., Mathematics, summa cum laude (2019)

PUBLICATIONS AND PREPRINTS

In mathematics:

- 1. Complexity of Finite Borel Asymptotic Dimension (joint with Jan Grebík). Preprint. arXiv:2411.08797
- 2. Measurable Brooks's Theorem for Directed Graphs. Submitted. arXiv:2405.00991

Outside mathematics:

1. C. Higgins, P. G. McQueen, K. Johnson, A. S. Scott, A. P. K. Wodrich, E. Giniger. Comparative analysis of methods for capturing high-dimensional structure in transcriptomic aging data. *In preparation.*

TALKS

- *: Denotes talk scheduled for a future date.
 - Invited talks
 - 1. Minisymposium on Descriptive Combinatorics at the Canadian Discrete and Algorithmic Mathematics Conference. Ottawa, Ontario, 5/20/25 - 5/23/25*.
 - AMS Special Session on Descriptive Combinatorics, Dynamics, and Measured Group Theory at the Joint Mathematics Meetings. Seattle, WA, 1/8/25 - 1/11/25*.
 - 3. Carnegie Mellon Mathematical Logic Seminar. Pittsburgh, PA, 11/26/24*.
 - 4. Montréal Descriptive Dynamics and Combinatorics Seminar. Montréal, Québec, 11/12/24.
 - 5. Mid-Atlantic Mathematical Logic Seminar (MAMLS). New Brunswick, NJ, 11/1/24 11/3/24.
 - 6. Special Session on Logic in SoCal at the AMS Fall Western Sectional Meeting. Riverside, CA, 10/26/24 10/27/24.
 - 7. Caltech Logic Seminar. Pasadena, CA, 10/16/24.

- Contributed talks
 - 1. European Set Theory Conference. Münster, Germany, 9/16/24 9/20/24.
 - 2. Symposium for Women and Gender Minorities in Mathematics in Southern California (WiMSoCal). Claremont, CA, 2/24/24.
- Seminar talks
 - 1. UCLA Women in Mathematics Research Night. 5/23/24, 5/22/23.
 - 2. UCLA Participating Seminar in Logic. 1/26/23, 5/16/22, 3/11/22.
 - 3. UCLA Graduate Student Outreach Seminar. 11/5/20.

HONORS AND AWARDS

- UCLA, Beckenbach Dissertation Year Award (2024)
- UCLA, Liggett Teaching Fellow Award (2022)
- UCLA, Cota-Robles Fellowship (2019)
- Rutgers, Highest Honors in Mathematics (2019)
- Rutgers, Lawrence P. Corwin Memorial Prize (2019)
- Rutgers, Alan Marc Schreiber Memorial Scholarship (2018)

TEACHING EXPERIENCE

University of California, Los Angeles

- Graduate Student Instructor (Instructor of Record)
 - Math 70: Introduction to Probability (Spring 2024)
- Teaching Assistant Consultant
 - Math 495: Teaching College Mathematics (Fall 2023)
- Teaching Assistant
 - Math 3B: Calculus for Life Sciences Students (Winter 2024)
 - Math 31A: Differential and Integral Calculus (Fall 2020, Winter 2021, Summer 2021, Winter 2022)
 - Math 31B: Integration and Infinite Series (Fall 2020, Winter 2021)
 - Math 33A: Linear Algebra and Applications (Fall 2021)
 - Math 61: Introduction to Discrete Structures (Spring 2021, Spring 2022)
 - Math 131A: Analysis (Spring 2021, Fall 2021, Winter 2022, Winter 2024)
 - Math 177: Theory of Interest and Applications (Spring 2022)

Rutgers University, New Brunswick

- Learning Assistant
 - MATH 300: Introduction to Mathematical Reasoning (Spring 2018, Fall 2018, Spring 2019)
- Grader
 - MATH 300: Introduction to Mathematical Reasoning (Spring 2018, Fall 2018)
 - MATH 356: Theory of Numbers (Fall 2017)
 - MATH 361: Set Theory (Spring 2019)

OTHER EMPLOYMENT

National Institute of Neurological Disorders and Stroke (NINDS)

• Intern, Giniger Lab (June 2024 – August 2024)

Bridge to Enter Advanced Mathematics (BEAM)

• Junior Faculty, BEAM Summer Away (Summer 2022, Summer 2023)

SERVICE AND OUTREACH

UCLA Women in Mathematics

- Co-organizer (Fall 2020 Spring 2024)
- Co-organizer, UCLA Women in Mathematics Mentorship Program (Fall 2021 Spring 2024)
- Mentor, UCLA Women in Mathematics Mentorship Program (Fall 2021 Spring 2024)
- Co-organizer, UCLA Distinguished Women in Mathematics Lecture Series (Fall 2023 Spring 2024)

UCLA Mathematics Directed Reading Program (DRP)

- Co-organizer (Fall 2021 Spring 2024)
- *Mentor* (Fall 2022 Spring 2023)

UCLA Mathematics Teaching Committee

• Graduate student representative (Fall 2022 – Spring 2023)

MISCELLANEOUS

- Programming languages: Python, R, C++, Java, MATLAB
- Natural languages: English, Dutch, French (reading only)