

Dr Thomas Morrill
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Department of Mathematics
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Education

Ph.D. in Mathematics, Oregon State University, 2017

Thesis: Overpartition Ranks, Cranks, and Frobenius Representations.

M.S. in Mathematics, Oregon State University, 2013

B.A. in Mathematics, Earlham College, 2011

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Work

August 2020 - Present: Assistant Professor of Mathematics, Trine University

Face-to-face, hybrid, and online teaching. Courses taught:

- College Algebra
- Trigonometry
- Discrete Mathematics
- Calculus I, II, III
- Differential Equations
- Linear Algebra
- Number Theory
- Historical Aspects of Mathematics

April 2018 - June 2020: Postdoctoral Fellow in Analytic Number Theory, UNSW Canberra

Summer 2012, 2014, and 2016; Fall 2017: Instructor, Oregon State University

Research

Papers

- *On the Euclidean Algorithm: Rhythm Without Recursion* Thomas Morrill, Bulletin of the Australian Mathematical Society 1-7. (2022) <https://doi.org/10.1017/S0004972722000909>
- *A Stanley–Elder Theorem on Cranks and Frobenius Symbols* George Andrews, Manosij Dastidar, Thomas Morrill, Research in Number Theory 7, 56 (2021) <https://doi.org/10.1007/s40993-021-00285-7>
- *Sign Changes in the Prime Number Theorem*, Thomas Morrill, David Platt, Tim Trudgian, The Ramanujan Journal (2021) <https://doi.org/10.1007/s11139-021-00398-8>
- *Quasimodularity of the k th Residual Cranks*, Thomas Morrill, Aleksander Simonic, International Journal of Number Theory (2021) <https://doi.org/10.1142/S1793042121500019>
- *Robin’s Inequality for 20-Free Integers*, Thomas Morrill, David Platt, INTEGERS: Electronic Journal of Combinatorial Number Theory 21 (2021) <http://math.colgate.edu/~integers/v28/v28.pdf>
- *Look, Knave*, Thomas Morrill, Bulletin of the Australian Mathematical Society, 103(2), 210-217 (2021) <https://doi.org/10.1017/S0004972720000659>
- *Inequalities for the d -th Residual Crank Moments of Overpartitions*, Ali Al-Saedi, Thomas Morrill, Holly Swisher, International Journal of Number Theory (2020) <https://doi.org/10.1142/S1793042120500840>
- *Difference Tones in “Non-Pythagorean” Scales Based on Logarithms*, Thomas Morrill, Journal of Mathematics and Music (2020) <https://doi.org/10.1080/17459737.2019.1704084>
- *An Elementary Bound on Siegel Zeroes*, Thomas Morrill, Tim Trudgian, Journal of Number Theory (2019) <https://doi.org/10.1016/j.jnt.2019.10.024>
- *Two Families of Buffered Frobenius Representations of Overpartitions*, Thomas Morrill, Ann. Comb. (2019) 23:103-141 <https://www.doi.org/10.1007/s00026-019-00419-w>

Conference Talks (Recent Five Years)

- *A Stanley-Elder Type Relationship for Overpartitions*, Joint Mathematics Meetings 2022, Conference held online, April 9, 2022
- *Quasimodularity of the k -th Residual Cranks*, Joint Mathematics Meetings 2022, Conference held online, April 7, 2022
- *Further Study of the Knave Map*, Number Theory Down Under 8, Conference held online, October 8, 2020
- *Look, Knave*, Number Theory Online Conference 2020, Conference held online, June 3, 2020
- *A Combinatorial Proof of Jackson’s Summation*, 63rd Meeting of the Australian Mathematical Society, Melbourne Australia, December 5 2019
- *Overpartition Crank Moments and Quasimodularity*, Number Theory Down Under 7, Sydney Australia, October 3 2019

- *Overpartitions*, 62nd Meeting of the Australian Mathematical Society, Adelaide Australia, December 5 2018
- *An elementary bound on Siegel zeroes*, Number Theory Down Under 6, UNSW Canberra, September 26, 2018
- *Improving the t -free results on Robin's inequality*, CNTA XV, Université Laval, July 12, 2018

Conferences Attended (Recent Five Years)

- Joint Mathematics Meetings 2022, online conference, April 2022
- Number Theory Down Under 8, online conference, October 2020
- Number Theory Online Conference 2020, online conference, June 2020
- 63rd Meeting of the Australian Mathematical Society, Monash University, Melbourne Australia, December 2019
- Number Theory Down Under 7, University of Sydney, October 2019
- Joint Mathematics Meetings 2019, Baltimore MD, January 2019
- 62nd Meeting of the Australian Mathematical Society, Adelaide Australia, December 2018
- Number Theory Down Under 6, UNSW Canberra, September 2018
- Algorithmic Number Theory Symposium, University of Wisconsin-Madison, July 2018
- Canadian Number Theory Association XV, Université Laval, July 2018

Seminar Talks (Recent Five Years)

- *Rook Polynomials: A Straight-Forward Problem*, Trine Mathematics Colloquium, February 10, 2022
- *The Theory of Integer Partitions, II*, Trine Mathematics Colloquium September 23, 2021
- *The Theory of Integer Partitions, I*, Trine Mathematics Colloquium, September 9, 2021
- *Moment Inequalities of Overpartition Cranks*, Amherst REU Seminar, July 19, 2021
- *Sign Changes in the Prime Number Theorem*, Binghamton Arithmetic Seminar, March 9, 2021
- *Look, Knave*, Oregon State University REU Seminar, October 2, 2020
- *A Moment to Count*, UNSW Canberra Number Theory Seminar, UNSW Canberra, March 9, 2020
- *Relaxing Modular Forms*, Canberra Number Theory Day, ANU, January 24, 2020
- *Overpartitions and q -Hypergeometric Series*, UNSW Number Theory Seminar, UNSW, October 31, 2019
- *Overpartition Cranks and Quasimodularity: Encore*, UNSW Canberra Number Theory Seminar, UNSW Canberra, October 15, 2019

- *Partition Zeta Functions*, UNSW Canberra Number Theory Seminar, UNSW Canberra, August 6, 2019
- *Introduction to Partition Theory II*, UNSW Canberra Number Theory Seminar, UNSW Canberra, May 21, 2019
- *Oscillations in the Prime Number Theorem Error Term*, Pure Maths Seminar, University of Queensland, May 14, 2019
- *Counting Sign Changes in the Prime Number Theorem*, ANU Algebra and Topology Seminar, ANU, March 26, 2019
- *Introduction to Partition Theory I*, UNSW Canberra Number Theory Seminar, UNSW Canberra, March 19, 2019
- *Buffered Frobenius representations of overpartitions*, UNSW Number Theory Seminar, UNSW, August 23, 2018
- *On Robin's Inequality*, REU Seminar, Oregon State University, August 6, 2018

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Service (Recent Five Years)

- Director, Math Tutoring Center and Math Competition, Trine University, 2022-
- Faculty Advisor, Gender and Sexualities Alliance Network, Trine University, 2021-
- Chair, Honors Calculus Committee, Trine University, 2021-
- General Education Assessment Committee, Trine University, 2021-
Data Literacy Subcommittee Chair, 2022-
- Director, Math Tutoring Center, Trine University, 2021-2022
- Mathematics Department Assessment Committee, Trine University, 2021-
- Math Competition Committee, Trine University, 2021-2022
- General Education Assessment Workshop, Trine University, 2021
- Mathematics Department Curriculum Committee, Trine University, 2020-2021
- Mathematics Department Hiring Committee, Trine University, 2020-2021
- Curriculum Committee, Trine Department of Mathematics and Physics, 2020-2021
- Co-organizer, Number Theory Online Conference 2020, June 2020
- QueersInScience Inaugural Committee for ACT, 2020
- UNSW Canberra LGBTIQ Diversity Champion and Working Group, 2019-2020
- UNSW Canberra Equity Diversity & Inclusion Committee, 2019-2020

- ACT Division Organiser Hiring Panel, NTEU, 2019
- UNSW ALLY Network, 2019-2020
- Mentor, Women in STEM Mentoring Program, UNSW Canberra, 2019, 2020
- Honours Defense Committee, UNSW Canberra, November 2018
- ACT Division Acting President, NTEU National Council, October 4-6 2018
- Session Chair, Number Theory Down Under 6, September 27, 2018
- ACT Division Councillor, National Tertiary Education Union, 2018-2019
- UNSW Canberra Branch Secretary, National Tertiary Education Union, 2018

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Outreach (Recent Five Years)

***Dynamical Mathematical Gazette* Contributor, 2022-**

<https://mathsfeed.blog/>

OSU Mathematics Alumni Panel

Oregon State University Graduate Orientation Seminar, May 25, 2022

“STEM with Storm”, Trine University, 2022

Online campaign promoting STEM Education in Steuben County, Indiana.

“Rook Polynomials: A Straight-Forward Problem” *AMS Feature Column*, January 1, 2022

<https://mathvoices.ams.org/featurecolumn/2022/01/01/rook-polynomials/>

“Diagonal Zeal,” April 2021

A song about the difficulties of mathematics jargon. Full audio and notes may be found at <https://jocko-homomorphism.bandcamp.com/track/diagonal-zeal>

QueersInScience Wear It Purple Day Campaign, 2020

Online campaign promoting Wear It Purple Day, an annual LGBTIQ+ awareness day in Australia.

QueersInScience National Science Week Campaign, 2020

Online campaign promoting National Science Week in Australia.

“A Game of Broken Telephone,” 2020

A general audience write-up of the Look, Knave problem (see *Research*, above), published in the *Midnight Missives* zine. <https://wtbc.bandcamp.com/merch/midnight-missives>

QueersInScience Prime Minister's Prizes for Science Campaign, 2020

Online campaign promoting diversity in nominations for the Prime Minister's Prizes for Science.

"Discretion," February 2020

A song about the mathematics behind RSA encryption. Full audio and notes may be found at jocko-homomorphism.bandcamp.com/track/discretion

"This is What a Scientist Looks Like" Australian Mathematical Sciences Institute Panel Discussion, University of New South Wales, January 23, 2019

Discussion of marginalized people's experiences in STEM fields.

"A New Ideal," November 2018

A song written in honor of number theorist Emmy Noether. Full audio and notes may be found at jocko-homomorphism.bandcamp.com/album/a-new-ideal

Science in ACTion Fair, Canberra, Australia, August 10-11, 2018

Stall Coordinator for UNSW Canberra

"Number Theory Down Under" Presentation, Madison Rotary Club, Madison IN, August 2, 2018

Training

- Standard Mental Health First Aider, Mental Health First Aid Australia, June 12, 2019
- UNSW Ally Training, UNSW Canberra, June 7, 2019
- Foundations of University Learning and Teaching, UNSW Canberra, February-April 2019
- Early Career Workshop, 62nd Meeting of the Australian Mathematical Society, Adelaide Australia, December 2019
- UNSW Essentials of Supervision, October 24, 2018
- NTEU Financial Governance Training, October 5, 2018
- OSU Office of Equity and Inclusion Implicit Bias Training, 2016
- OSU Online FERPA Training, Oregon State University, 2011

References

Dr. Sarah Franzen	Dean of the Jannen School	nicholsm1@trine.edu	(260) 665-4302
Dr. Holly Swisher	Professor	swisherh@math.oregonstate.edu	
Dr. Tim Trudgian	Associate Professor	t.trudgian@adfa.edu.au	+61 2 6268 8021
Dr. Anthony Vasaturo	Assistant Professor	t.trudgian@adfa.edu.au	+61 2 6268 8021

Last updated: October 30, 2022

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