Thomas Morrill

Assistant Professor of Mathematics
Department of Mathematics and Physics
Trine University
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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

Classes taught:

- Trigonometry

- Differenetial Calculus

- Integral Calculus

- Linear Algebra

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

Classes taught:

- Ordinary Differential Equations

- Elementary Number Theory

- Engineering Mathematics (Multivariate Calculus and Elementary Probability)

Fall 2017: Instructor, Oregon State University

Classes taught:

- Integral Calculus

Summer 2012, 2014, and 2016: Instructor, Oregon State University

Classes taught:

- Integral Calculus

- Discrete Mathematics

- Linear Algebra and Power Series

September 2011 - June 2017: Graduate Teaching Assistant, Oregon State University

Research

Papers

- *A Combinatorial Proof of Jackson's Transformation*, Thomas Morrill, In Preparation

- *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 kth 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, Under Review
https://arxiv.org/abs/1809.10813

- *Look, Knave*, Thomas Morrill, Bulletin of the Australian Mathematical Society (2020)
https://doi.org/10.1017/S0004972720000659

- *Inequalities for the dth 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 (Last 5 Years)

- *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

- *Two families of Frobenius representations of overpartitions*, 31$^{\text{st}}$ Automorphic Forms Workshop, March 8, 2017

- *Overpartition statistics: Symmetry and combinatorics*, Pacific Northwest Section of the MAA, Algebra and Number Theory Section, April 2, 2016

Conferences Attended (Last 5 Years)

- Number Theory Down Under 8, Conference held online, October 2020

- Number Theory Online Conference 2020, Conference held online, 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

- Joint Mathematics Meetings 2017, Atlanta, Georgia, January 2017

- Connecticut Summer School in Number Theory, University of Connecticut 2016

Seminar Talks (Last 5 Years)

- *Sign Changes in the Prime Number Theorem*, Binghamton Arithmetic Semianr, 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

- *Partitions: Proof by generating series*, REU Seminar, Oregon State University, July 12, 2017

- *Overpartition ranks and frobenius representations*, Ph.D Defense, Oregon State University, May 25, 2017

- *Moment inequalities of the dth redisual crank*, OSU Number Theory Seminar, February 7, 2017

- *Frobenius representations of partitions*, OSU REU Seminar, August 1, 2016

- *A brief introduction to Frobenius representations*, OSU Number Theory Seminar, May 31, 2016

- *Fantasy moment generating functions of overpartition statistics: Cranks for all the fish*, OSU Number Theory Seminar, February 2, 2016

- *The adventures of p-adics*, OSU Number Theory Seminar, November 24, 2016

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Outreach

"Diagonal Zeal," April 2021

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

"Discretion," February 2020

A song inspired by RSA encryption. Full audio and notes may be found at jocko-homomorphism.bandcamp.com/track/discretion

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

"A New Ideal," November 2018

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

"Science in ACTion"

Stall Coodinator, Canberra Australia, August 10-11, 2018

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

Interpret Your Research Competition, SEA Through the Eye of an Artist, Oregon State University, April 15, 2017

Full audio and notes may be found at soundcloud.com/jocko-homomorphism/demo-take-partitions-mod-5.

Interviewee, Inspiration Dissemination, Series 4, KBVR 88.7 FM Oregon State University 2015

Full audio may be found through OSU Special Collections & Archives http://scarc.library.oregonstate.edu/.

Judge and Art Design, Thirty-fourth Annual Oregon Invitational Math Tournament, Oregon State University, 2014

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Training

Training Received

- 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

- American Federation of Teachers Oregon President's Conference, Portland, OR, 2013, 2015, 2016

- American Federation of Teachers Oregon Racial Justice Training, Portland, OR, 2016

- OSU Office of Equity and Inclusion Implicit Bias Training, 2016

- American Federation of Teachers Oregon Winter School, Oregon Coast, 2013, 2014, 2015, 2016

- OSU Mathematics Department Graduate Teaching Seminar, Oregon State University, 2011-2013
- OSU Online FERPA Training, Oregon State University, 2011

Service

Member,General Education Assessment Workshop, Trine University, 2021

Member, Curriculum Committee, Trine Department of Mathematics and Physics, 2020-2021

Member, Inaugral Committee for ACT, QueersinScience, 2020

Member, UNSW Canberra LGBTIQ Diversity Champion and Working Group, 2019-2020

Member, UNSW Canberra Equity Diversity & Inclusion Committee, 2019-2020

Member, ACT Division Organiser Hiring Panel, NTEU, 2019

Member, UNSW ALLY Network, 2019-2020

Mentor, Women in STEM Mentoring Program, UNSW Canberra, 2019, 2020

Member, 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

Mathematics Instructor Promotion Student Committee, Oregon State University, 2016

Chair, Coalition of Graduate Employees Business Manager Hiring Committee, 2016

Session Chair, 8th Annual Northwest Undergraduate Mathematics Symposium, Oregon State University, April 2, 2016

Delegate, American Federation of Teachers National Convention 2016, Minneapolis, MN, 2016

Delegate, American Federation of Teachers Oregon Convention, OR, 2013-2017

President, Coalition of Graduate Employees, 2016-2017

Vice President for Collective Bargaining and Grievances, Coalition of Graduate Employees 2014-2016

Oregon State University Employee & Labor Relations Manager Hiring Committee, 2014

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References

Ms. Marissa Nichols	Chair	nicholsm1@trine.edu	(260) 665-4302
Dr. Dan Rockwell	Senior Instructor	rockweld@math.oregonstate.edu	
Dr. Thomas Schmidt	Professor	toms@math.oregonstate.edu	
Dr. Holly Swisher	Professor	swisherh@math.oregonstate.edu	
Dr. Tim Trudgian	Associate Professor	t.trudgian@adfa.edu.au	+61 2 6268 8021