

# JACK THOMPSON

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## CURRENT POSITION

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- Jul. 2024 – **Associate Lecturer**, *University of Western Australia*  
Jun. 2026 Equivalent to a postdoctoral position outside Australia.

## EDUCATION

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- Feb. 2021 – **Doctorate in Philosophy**, *University of Western Australia*  
Jul. 2025 Supervisors: Enrico Valdinoci, Serena Dipierro, and Giorgio Poggesi.  
Thesis Title: *Stability results for nonlocal Serrin-type problems, antisymmetric Harnack inequalities, and geometric estimates.*  
Included on UWA's Dean's list.
- 2020 **Bachelor of Mathematics (Honours)**, *University of Queensland*  
Supervisors: Artem Pulemotov (principal), and Timothy Buttsworth  
Thesis Title: *On the Uniqueness of Conformal Metrics with Prescribed Curvature*  
GPA: 7/7, First Class Honours
- 2017 – 2019 **Bachelor of Mathematics**, *University of Queensland*  
GPA: 6.83/7

## AWARDS AND SCHOLARSHIPS

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- May 2026 **2025 Robert Street Prize**  
Awarded for the most outstanding thesis for the degree of Doctor of Philosophy at the University of Western Australia each year.
- Dec. 2025 **Commendation for Outstanding Contributions to Student Learning**  
An award from the University of Western Australia's School of Physics, Mathematics and Computing for contributions to teaching excellence.
- May 2025 **GRS Dean's List**  
An award from the University of Western Australia's Board of the Graduate Research School recognising outstanding theses.
- Mar. 2025 **AustMS Lift-off Fellowship**  
A prestigious fellowship to jump-start the careers of young mathematicians by supporting them after submitting their PhD thesis. The Lift-off Fellowships are awarded on academic merit.
- Sep. 2023 **AMSI-AustMS Heidelberg Laureate Forum Travel Support**
- Dec. 2020 **Ethel Raybould Prize in Mathematics**  
Awarded to the honours student in the field of mathematics at the University of Queensland with the greatest proficiency for the year.

- Feb. 2021 – **Australian Government RTP Fees Offset Scholarship and RTP Stipend**  
 Jul. 2024 The RTP Stipend provides a stipend during my PhD candidature and the RTP Fees Offset Scholarship is used by the University to offset tuition fees for the research component of my PhD.
- Feb. 2017– **Seven time recipient of Dean’s Commendation for Academic Excellence**  
 Nov. 2019 Awarded each semester to a student at the University of Queensland who has displayed outstanding academic achievements.

## ARTICLES AND PREPRINTS

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9. Volumetric density estimates for nonlocal minimal surfaces  
*Mateusz Kwaśnicki, Jack Thompson.*  
 arXiv:2605.02176
8. A half-space theorem for nonlocal minimal surfaces  
*Matteo Cozzi, Jack Thompson.*  
 arXiv:2604.27628
7. Density estimates and the fractional Sobolev inequality for sets of zero  $s$ -mean curvature.  
*Jack Thompson.*  
 Calc. Var. 65, 2 (2026).
6. The nonlocal Harnack inequality for antisymmetric solutions: an approach via Bochner’s relation and harmonic analysis.  
*Serena Dipierro, Mateusz Kwaśnicki, Jack Thompson, and Enrico Valdinoci.*  
 Comm. Partial Differential Equations 50.8 (2025), pp. 1074–1098
5. Some nonlocal formulas inspired by an identity of James Simon.  
*Serena Dipierro, Jack Thompson, Enrico Valdinoci.*  
 Münster J. Math. 18 (2025), p.201-226.
4. Quantitative stability for overdetermined nonlocal problems with parallel surfaces and investigation of the stability exponents.  
*Serena Dipierro, Giorgio Poggesi, Jack Thompson, and Enrico Valdinoci.*  
 J. Math. Pures Appl. (9) 188 (2024), pp. 273–319.
3. Quantitative stability for the nonlocal overdetermined Serrin problem.  
*Serena Dipierro, Giorgio Poggesi, Jack Thompson, Enrico Valdinoci.*  
 Submitted. Available preprint at arXiv:2309.17119.
2. On the Harnack inequality for antisymmetric  $s$ -harmonic functions.  
*Serena Dipierro, Jack Thompson, and Enrico Valdinoci.*  
 J. Funct. Anal. 285.1 (2023), Paper No. 109917, 49.
1. The role of antisymmetric functions in nonlocal equations.  
*Serena Dipierro, Giorgio Poggesi, Jack Thompson, and Enrico Valdinoci.*  
 Trans. Amer. Math. Soc. 377.03 (2024), pp. 1671–1692.

## INVITED PRESENTATIONS

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- Mar. 2026 *University of Sydney PDE seminar, Sydney, Australia.*
- Mar. 2026 *ANU PDE and analysis seminar, Canberra, Australia.*
- Nov. 2026 *Universität Bonn Oberseminar Analysis, online.*

- Oct. 2025 *ESI Thematic Programme on Free Boundary Problems, Vienna, Austria.*
- May. 2025 *University of Milan Analysis Seminar, Milan, Italy.*
- Jan. 2024 *MATRIX Elliptic Partial Differential Equations, Geometry, and the Calculus of Variations, Creswick, Australia.*
- Dec. 2023 *AustMS Annual Meeting, Brisbane, Australia.*
- Jul. 2023 *International Conference on Nonlinear Partial Differential Equations In Honour of Professor Neil Trudinger's 80th Birthday, Sydney, Australia.*
- May 2023 *Asia-Pacific Analysis and PDE Seminar, online.*
- Jan. 2023 *MATRIX Minimal surfaces and geometric flows: interaction between the local and the nonlocal worlds, Creswick, Australia.*
- Dec. 2022 *AustMS Annual Meeting, Sydney, Australia.*
- Aug. 2022 *Australian Geometric PDE Seminar, online.*
- Dec. 2021 *AustMS Annual Meeting, online.*

## TEACHING

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- Sem. 2, 2025 **Course coordinator** at the *University of Western Australia*. Taught *MATH1720: Mathematics Fundamentals*.
- Sem. 2, 2024 **Course coordinator** at the *University of Western Australia*. Taught *MATH1720: Mathematics Fundamentals*.
- Sem. 1, 2022 **Assistant to course coordinator** at *University of Western Australia*. Extra responsibilities included organisation of teaching assistants, running of weekly assignments, and involvement in mid-semester/final exam. Taught two classes in this period.
- Sem 2, 2022
- Sem. 1, 2021 **Teaching assistant** at the *University of Western Australia*. Taught 12 classes in this period.
- Sem. 1, 2024 A complete list can be found on my website.
- Sem. 1, 2019 **Teaching assistant** at the *University of Queensland*. Taught 10 classes in this period. A complete list can be found on my website.
- Sem 2, 2021

## ORGANISATION

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- Feb. 2024 – Organisation committee for 7-th Australian Mathematical Sciences Students Conference, held at Western Sydney University in Sydney, Australia between 4 Dec. 2024–6 Dec. 2024.
- Nov. 2024
- Aug. 2022 – Organised a weekly outreach seminar series for undergraduate students.
- Jul. 2024

## SERVICE

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- Peer Review:** Calculus of Variations and Partial Differential Equations, and Discrete and Continuous Dynamical Systems.
- Dec. 2023 – Vice-president of the newly formed Association of Australian Mathematics Students (AAMS).
- Dec. 2024.
- Feb. 2023 – Maths Union postgraduate representative, *University of Western Australia*.
- Jul. 2024

## EXTENDED VISITING EXPERIENCES

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Jan. 2025 – *Università degli Studi di Milano, Italy.* Invited by M. Cozzi and G. Ciralo.  
May 2025

Oct. 2023 *Universitat de Barcelona, Bracelona.* Invited by X. Ros-Oton.

Sep. 2023 *10-th Heidelberg Laureate Forum.*

Oct. 2022 – *Universitat de Barcelona, Bracelona.* Invited by X. Ros-Oton.  
Nov. 2022

*Last updated: May. 2026.*