

Contact Information

Email: `fern.gossow@sydney.edu.au`

Education

M.S. (Mathematics).

University of Oregon, 2022–2024.

Honours, University Medal (Pure Mathematics).

University of Sydney, 2021.

B Science and B Advanced Studies (Mathematics major, Data Science major).

University of Sydney, 2018–2021.

Employment

University of Sydney, NSW 2006.

MySydney maths advisor. 2025

Learning success advisor. 2024–

Casual academic. 2022 and 2024–

- Linear Mathematics and Vector Calculus (MATH2061), Workshop creation
- Discrete Mathematics (MATH1064), Tutor
- Mathematics 1A (MATH1061), Tutor
- Linear Mathematics and Vector Calculus (MATH2061), Tutor
- Linear and Abstract Algebra, Advanced (MATH2922), Tutor
- Linear Algebra (MATH1902), Tutor
- Linear Algebra (MATH1002), Tutor
- Therapeutic Principles (PHAR2813), Tutor

University of Oregon, Eugene, OR 97401.

Graduate employee. 2022–2024.

- Trigonometry (MATH112), Instructor of Record
- College Algebra (MATH111), Instructor of Record
- College Algebra (MATH111), Teaching Assistant

Prime Education, Chatswood, NSW 2067.

High school tutor of small classes. 2018–2022

- Mathematics (Year 12 Extension), Tutor.
- Mathematics (Year 12 Advanced), Tutor.

Teaching Resource Developer. 2019–2022.

Self-employed.

Private high school tutor, 2018–2021.

Academic Output

Bounded core partitions and Borel–Weil–Bott

Preprint, 2025.

Joint with Andy Huchala

Ordered trees and the Geode.

Preprint, 2025.

Polynomial and combinatorial analogues of Gauss congruence.

Submitted to *Combinatorial Theory*, 2025.

On the action of the Weyl group on canonical bases.

Published in *Mathematische Zeitschrift*, 2025.

Joint with Oded Yacobi.

On the action of the long cycle on the Kazhdan-Lusztig basis.

Published in *Séminaire Lotharingien de Combinatoire*, 2022.

Joint with Oded Yacobi.

Actions of the symmetric group on the Kazhdan-Lusztig basis.

Honours Thesis. The University of Sydney, 2021.

Supervised by Oded Yacobi.

Proficiencies

LaTeX, Canvas, WeBWorK, Python, R, MAGMA, Mathematica, HTML/CSS, Office suite

Scholarships and Prizes

- University Medal, 2021.
 - Barker Scholarship No IV for Senior Mathematics (\$750), 2021.
 - Barker Prize for Honours (\$275), 2021.
 - David Jackson Prize for creativity in pure mathematics (\$1100), 2021.
 - John Coutts Scholarship (\$7500), 2021.
 - IMC Prize for Simon Marais (\$1500), 2021.
 - Dean's List for Academic Excellence. 2018, 2019, 2020 and 2021.
 - Merit Prize. 2018, 2019, 2020 and 2021 (\$1000 each).
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Other Service

- Wikipedia editor for articles such as *Cyclic Sieving*, 2025–.
- Creator of the Philosophy and Art in Mathematics Seminar at UO, 2024.

- Mentor for a Directed Reading Program project on *Generating Functions* at UO, 2024.
- Comms Director of the Association for Women in Mathematics at UO, 2023–2024.
- Social Coordinator for Women in Graduate Science at UO, 2023–2024.
- Volunteer at Girls’ Science Adventure Days, 2023–2024.
- Volunteer at the Eugene Math Festival, 2023–2024.
- General Executive of Σ UMS, the mathematics society at USYD, 2020.
- Mentor for Women in Maths peer mentoring group at USYD, 2021
- Co-creator of a $\text{\LaTeX}$ workshop for gender minoritised first-year students, 2021.
- Mentor for Dalyell Group Project on *Dynamics of Coral Reef Ecology*, 2020.
- Executive of the Cubing Society at the University of Sydney, 2018.

Public talks on mathematics

- *Gauss congruence and rotational symmetries*. Queer and Trans Mathematicians in Combinatorics (University of Queensland), 2025.
- *Beavers, machines, cryptids*. Maths society (University of Sydney), 2025.
- *Hidden symmetries in representations*. GAG Seminar (UTS), 2025.
- *Gauss congruence and rotational symmetries*. Postgraduate mathematics seminar (University of Sydney), 2025.
- *How to win every game*. Maths society (University of Sydney), 2024.
- *My favourite number*. Science slam (Eugene Science Center), 2024.
- *Dividing by three*. Combinatorics seminar (University of Oregon), 2024.
- *Category Theory*. 3 Minute Thesis competition (University of Oregon), 2023.
- *So what are numbers anyway?*. Philosophy seminar (University of Oregon), 2023.
- *An equivlance on cographs*. Combinatorics seminar (University of Oregon), 2023.
- *Snake oil and generating functions*. Combinatorics seminar (University of Oregon), 2023.
- *Introduction to cyclic sieving*. Combinatorics seminar (University of Oregon), 2022.
- *Promotion on tableaux*. 3 Minute Thesis competition (University of Queensland), 2022.
- *Acting by Separable Permutations on the Kazhdan-Lusztig basis*. FPSAC (Indian Institute of Science), 2022.
- *Introduction to $\text{\LaTeX}$* . Society for women and gender-diverse students in mathematics (University of Sydney), 2022.
- *Using representation theory for combinatorics*. Student Symposium in Combinatorics (UNSW), 2022.

- *Detecting pulsars in compact binary orbits*. Internship program (CSIRO), 2021.
- *Acting by the long cycle on the KL basis*. Honours presentation (University of Sydney), 2021.
- *The beauty of counting*. Maths society (University of Sydney), 2021.
- *Piecewise isometries*. AMSI (University of Melbourne), 2020.
- *Fuchsian groups*. Dalyell seminar (University of Sydney), 2020.
- *Schottky groups*. Maths society (University of Sydney), 2018.