

# Max Carter

## Curriculum Vitae

School of Mathematical and Physical Sciences,  
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### Education

- 2021–Present **Master of Philosophy (Mathematics)**, University of Newcastle, (In Progress).  
Australian equivalent of a European MSc in mathematics.
- 2017–2020 **Bachelor of Mathematics (Honours)**, University of Newcastle.  
First Class Honours, Faculty Medal, 94% WAM, 99% Thesis Mark.
- 2011–2016 **High School Certificate**, Maitland Grossman High School, Australia.

### Publications & Written Work

- Apr 2021 Carter, M., Willis, G., *Cartan-like Decompositions of Totally Disconnected Locally Compact Groups*, in preparation.
- Feb 2021 Carter, M., Willis, G., *Decomposition Theorems for Automorphism Groups of Trees*, Bulletin of the Australian Mathematical Society, **103(1)**, (2021), 104–112.
- Nov 2020 Carter, M., *Two Properties of Totally Disconnected Locally Compact Groups*, Honours Thesis, University of Newcastle, (2020).
- Aug 2020 Carter, M., Tornier, S., Willis, G., *Free Products of Graphs*, Australasian Journal of Combinatorics, **78(1)**, (2020), 154–176.
- Feb 2019 Report on *Free Products of Graphs* for AMSI Vacation Research Scholarship. Details can be found at <https://vrs.amsi.org.au/student-profile-max-carter/>.

### Teaching

- 2019 - Present University of Newcastle: I have run workshops and tutorials for a variety of mathematics courses at the University of Newcastle. The role also involves marking of assessments and invigilating in class exams. Listed below are the courses I have taught:
- MATH1001 - Preparatory Studies in Mathematics (Sem 1 2019, Sem 2 2019, Sem 2 2020, Sem 1 2021)
- MATH1002 - Foundational Studies in Mathematics (Sem 2 2019, Sem 1 2021)
- MATH1120 - Mathematics for Engineering, Science and Technology 2 (Sem 2 2020, Sum 2 2021)
- MATH1510 - Discrete Mathematics (Sem 2 2021)
- MATH2310 - Calculus of Science and Engineering (Sem 2 2020, Sem 1 2021, Sem 2 2021)
- MATH2330 - Real Analysis (Sem 1 2020)
- MATH2340 - Linearity and Continuity (Sem 1 2020)
- MATH3205 - Fourier Analysis (Sem 1 2021) (Marking and one-on-one consultations only)
- 2018 - Present I provide private mathematics tutoring for university level mathematics students from first year undergraduate through to postgraduate level. The job involves preparing and giving lessons to students and assisting them with their studies outside of class time. Lessons are run either face-to-face or online.

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## Conferences & Workshops

- 18-19 Jan 2021 Australia Algebra Conference (AAC04), Virtual, Hosted by the University of Melbourne, Australia.
- 11-15 Jan 2021 Postgraduate Group Theory Conference 2020, Virtual, Hosted by the University of Southampton, UK.
- 15-18 Dec 2020 Locally Compact Groups Acting on Discrete Structures (WinSum School), Virtual, Hosted by the Bernoulli Centre, EPFL, Lausanne, Switzerland.
- 7-11 Dec 2020 64th Annual Meeting of the Australian Mathematical Society, Virtual, Hosted by the University of New England, Armidale, Australia.
- 6-31 Jan 2020 AMSI Summer School 2020, La Trobe University, Melbourne, Australia.
- 6-8 Feb 2019 AMSI Connect Conference, University of Melbourne, Australia.

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## Talks

- 18 Jan 2021 *Cartan-like Decompositions of Totally Disconnected Locally Compact Groups*, Australian Algebra Conference (AAC04), Virtual.
- 15 Jan 2021 *Cartan-like Decompositions of Totally Disconnected Locally Compact Groups*, Postgraduate Group Theory Conference 2020, Virtual.
- 26 Nov 2020 *Two Properties of Totally Disconnected Locally Compact Groups*, Honours Thesis Seminar, University of Newcastle.
- 24 Jul 2020 *Two Properties of Totally Disconnected Locally Compact Groups*, Local Seminar, University of Newcastle.
- 7 Nov 2019 *Decomposition Theorems for Automorphism Groups of Trees*, Local Seminar, University of Newcastle.
- 8 Feb 2019 *Free Products of Graphs*, AMSI Connect Conference, University of Melbourne.
- 15 Dec 2018 *Free Products of Graphs*, Local Seminar, University of Newcastle.

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## Scholarships & Grants

- 2021/2022 **Australian Government Research Training Program Scholarship** (~ \$57000 AUD)
- Dec 2020 Undergraduate Summer Research Scholarship (\$3000 AUD)
- Dec 2019 Faculty of Science Summer Research Scholarship (\$3000 AUD)
- Nov 2019 AMSI Summer School Travel Grant (~ \$2000 AUD)
- Dec 2018 AMSI Vacation Research Scholarship (\$3000 AUD)

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## Awards & Achievements

- Dec 2020 **Faculty Medal**. Awarded to students who achieved exceptional merit throughout the course of their degree.
- Oct 2020 **Mathematics Prize in 3000 Level Mathematics**. Awarded annually to the student with the best performance, if of sufficient merit, in level 3000 mathematics courses at the University of Newcastle. The prize was awarded to me for my studies during 2019.
- Apr 2019 **Ivan Lincoln Rose Prize in Applied Mathematics**. Awarded annually to the student with the best performance, if of sufficient merit, in level 3000 applied mathematics courses at the University of Newcastle. The prize was awarded to me for my studies during 2018.
- 2017, 2018, 2019 & 2020 Placed on the Faculty of Science Commendation List (University of Newcastle)
- 2018, 2019 & 2020 A part of the Bachelor of Mathematics Merit Pathway
- Nov 2016 Award for Outstanding Achievements in Physics and Mathematics
- Nov 2016 Award for High Achievements in HSC Mathematics

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## Volunteer Experience

2021 *University of Newcastle Peer Mentor Program.*

14 Jan 2021 *National Youth Science Forum.* Assisted running a workshop for students covering aspects of symmetry and group theory.

2019/2020 *University of Newcastle Maths Club.* Assisted in starting the UoN Maths Club along with running various events over 2019 and 2020.

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## Languages

English (Mother), German (Basic), French (Basic).

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## Personal Interests

Academics: Mathematics, Theoretical Physics, Philosophy, Languages.

Sport: Weightlifting, Running, Cycling, Mountainbiking.

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## Last Updated

20th June 2021