

Ayesha Hussain

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Climate Modelling Postdoctoral Research Fellow, interested in terrestrial carbon and bioenergy mitigation.

(Correct as of June 2026)

Research

Climate Research.....

How Probabilistic Regional Impacts from Model patterns and Emissions affect Biocrop Overshoot Modelling (Hussain, A. et al) (2026+): Work in Progress

Global comparison of temporal dynamics of C storage efficiency between A/R and BECCS on global existing agricultural lands (Nutzel, T. et al) (2024+): Work in Progress

SPRUCE-MIP: Model Intercomparison of Northern Peatland Carbon Cycle Over the SPRUCE Site (Shi, X. et al) (2023+): Submitted to AGU Conference

<https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1396189>

Number Theory.....

The Limiting Distribution of Legendre Sums (Hussain, A. and Lamzouri, Y.) (2024): Published at 'Journal de l'Ecole polytechnique'

<https://arxiv.org/pdf/2304.13025.pdf>

The Limiting Distribution of Character Sums (Hussain, A.) (2022): Published at 'International Mathematical Research Notices' (IMRN)

<https://doi.org/10.1093/imrn/rnab194>

Employment

University of Exeter and the Met Office

Carbon Cycle Scientist

2024–Present

Subcontracted to the Met Office, working on bioenergy mitigation.

Working with Andy Wiltshire and Eddy Robertson

University of Exeter

Lecturer

2024–2026

10% teaching lectureship role

Module lead for the Foundation Year course 'Exploring Mathematics'.

University of Exeter

Postdoctoral Research Fellow

2022–2024

Working on the Land Productivity Drivers work package as part of the EU ESM2025 grant.

Advised by Dr Pierre Friedlingstein.

Education

University of Bristol

PhD Student

2018–2022

Thesis titled *Character Studies: Investigating the Limiting Distribution of Character Sums*.

Advised by Dr Jonathan Bober.

University of Durham (Grey College)

Integrated Masters Student, 1st Class

2013–2017

Final year project titled *The Rankin-Selberg Bound: Bounding the Fourier Coefficients of Cusp Forms Using the Rankin-Selberg Method*.

Advised by Dr Jens Funke and Dr Thanasis Bouganis.

Teaching Experience

University of Exeter

Module Lead/Lecturer/Moderator/Exam Marker for Various Courses Summer 2024 – Summer 2026

- Second year Vector Calculus exam marking (Summer 2026),
- Exam moderating for various modules (Summer 2026),
- Foundation year Exploring Mathematics Module Lead (Spring 2025)

University of Bristol

Module Tutor/Moderator/Assistant for Various Courses

Autumn 2018 – Spring 2022

- Third year Number Theory homework marker (Spring 2022),
- First year Mathematics 1A20 module tutor (Autumn 2021),
- Mathematical Investigations moderator (Spring 2021),
- Exam marker Mathematics 1A20 module (Spring 2021),
- Perspectives in Mathematics moderator (Autumn 2020),
- First year Mathematics 1A20 module tutor (Autumn 2020),
- Analysis B module tutor (Spring 2020),
- Number Theory module homework marker (Spring 2020),
- First year Mathematics 1A20 module tutor (Autumn 2019),
- Engineering Mathematics Teaching Assistant (Autumn 2019),
- Numerical Analysis Teaching Assistant (Spring 2019),
- First year Mathematics 1A20 module tutor (Autumn 2018).

University of Durham

Homework Marker

Autumn 2016 – Spring 2017

Second year Numerical Analysis module homework marker.

Miscellaneous.....

Self Employed

Private Tutor

2011 – 2022

One-on-one Mathematics tutor.

- Preparing pupils for 11+, 13+, GCSE, A Level and University Admission examinations.

Seminar Talks

EU (Virtual)

EU ESM2025 Land Productivity Drivers Meeting

February 2023

Nitrogen Limitations at BiFOR

University of Exeter

Land Surface Modelling Discussion Group

February 2023

A Tale of 2 FACE Sites

University of Exeter <i>Climate Coffee</i> Enhanced CO_2 Experiments	November 2022
University of Warwick <i>Warwick Number Theory Seminar</i> Distributions of Character Sums	January 2022
University of Bristol <i>Postgraduate Seminar</i> The Man, The Myth, The Legend(re)	October 2021
University of Oxford (Virtual) <i>Oxford Junior Number Theory Seminar</i> Distributions of Character Sums	May 2021
University of Montreal (Virtual) <i>Mobius ANT Seminar</i> Distributions of Character Sums	March 2021
University College London <i>London Junior Number Theory Seminar (Virtual)</i> What Is a Random Multiplicative Function	March 2021
University of Bristol (Virtual) <i>Postgraduate Seminar</i> Introduction to Random Multiplicative Functions	November 2020
University of Bristol <i>Linfoot Seminar</i> Distributions of Character Sums	March 2020
University of Bristol <i>Postgraduate Seminar</i> Paths of Dirichlet Characters	November 2019

Conference Talks

University of Bath <i>National Climate Dynamics Workshop</i> Modelling Elevated Carbon Dioxide Concentrations and Temperature Perturbations in a Boreal Peatland Forest	June 2024
University of Bristol (Virtual) <i>MINGLE 2021</i> The Probability Behind Yahtzee	September 2021
Virtual Conference <i>CANT Workshop</i> Distributions of Character Sums	May 2021
Virtual Conference <i>Women In Number Theory and Geometry</i> Distributions of Character Sums	January 2021
Virtual Conference <i>3rd BYMAT Conference</i> Distributions of Character Sums	December 2020
University of Bristol (Virtual) <i>MINGLE 2020</i>	September 2020

Animals and Counting

University of Warwick

Young Researchers in Algebraic and Analytic Number Theory
Paths of Dirichlet Characters

November 2019

Conferences

UKCEH, Wallingford

JULES Annual Science Meeting

September 2024

University of Bath

National Climate Dynamics Workshop

June 2024

Met Office

Royal Meteorological Society's Early Career and Student Conference

June 2024

Potsdam, Germany

ESM2026 General Assembly

May 2024

Met Office

Women in Climate Meeting

May 2024

University of Oxford

JULES Annual Science Meeting

September 2022

Paris, France

ESM2025 General Assembly

June 2022

University of Reading

LMS Women in Mathematics Day

May 2022

University of Bristol

Young Researchers in Number Theory, Co organiser

August 2021

Virtual Conference/Paris

Summer School in Analytical Number Theory

June 2021

University of Bristol

Young Researchers in Mathematics, Co organiser

June 2021

City University of New York

CANT Workshop

May 2021

Insitut Mittag Leoffler

Number Theory Research Program

January-March 2021

Virtual Conference

Women In Number Theory and Geometry

January 2021

Virtual Conference

3rd BYMAT Conference

December 2020

Virtual Conference

Black Heroes of Mathematics Conference

October 2020

University of Bristol

Heilbronn Annual Conference 2020

September 2020

University of Warwick <i>Young Researchers in Algebraic Number Theory</i>	November 2019
University of Oxford <i>Warwick-Oxbridge-Manchester-Bristol-London (WOMBL)</i>	September 2019
University of Bristol <i>Heilbronn Annual Conference 2019</i>	September 2019
Grand Hotel San Michele, Cetraro, Italy <i>Symposium on Analytic Number Theory</i>	July 2019
University of Bristol <i>CMI-HIMR Summer School in Computational Number Theory</i>	June 2019
University of Mississippi <i>NSF-CBMS Conference: L-Functions and Multiplicative Number Theory</i>	May 2019
University of Cambridge <i>Warwick-Oxbridge-Manchester-Bristol-London (WOMBL)</i>	January 2019
University of Sheffield <i>Young Researchers in Algebraic Number Theory</i>	November 2018

Outreach

University of Plymouth <i>Balancing the Equation</i> Planned to give a talk to years 10-12 about jobs in Mathematics.	June 2026
Mulberry Schools Trust <i>Mathematics at University</i> Gave a talk to A-Level students about Mathematics at University.	February 2025
Mulberry Schools Trust <i>Number Theory, Climate, and all Things Mathematics</i> Gave a talk to A-Level students about Mathematics at University.	February 2024
AMSP Charity <i>Women in Maths Research Workshop</i> Talked to GCSE students about Higher Education Mathematics.	February 2024
Mulberry Schools Trust <i>What is a Maths PhD?!</i> Gave a talk to A-Level students about Mathematics at University.	March 2023
University of Bristol <i>Women in Maths Research</i> Gave a talk to years 10-12 about Early Career Researchers.	February 2023
University of Bristol <i>Women and Non-Binary People in Maths: Opportunities for the future</i> Conference co-organiser for the 2 day event.	November 2021
University of Bristol <i>Women and Non-Binary People in Maths: Opportunities for the future</i> Conference co-organiser for the 2 day event.	November 2020
University of Bristol <i>Women in Mathematics Research</i>	June 2020

~~Main conference organiser promoting studying Maths to A level students.~~

University of Bristol

Women and Non-Binary People in Maths: Opportunities for the future
Conference co-organiser for the 2 day event.

November 2019

University of Bristol

Women in Mathematics Research
Gave a workshop on aspects of my research.

September 2019

Cheltenham Science Festival

Discover Zone Mathematics Stand
Helped showcase interactive Mathematics exhibits for the general public.

June 2019

Walthamstow Hall Senior School

Mathematics at Undergraduate Level and Beyond
Gave talks to years 10-12 about Mathematics at University.

November 2018

Francis Holland School

Mathematics: Applications after School
Gave talks to years 10-12 about Mathematics at University.

November 2018

Miscellaneous

Programming Experience: Experience using Fortran, Python, SQL, Latex, HTML, CSS.

Seminar Co-organiser: Linfoot Seminar.

Conference Co-organiser: MINGLE 2019 (annual Bristol postgraduate conference).

Conference Co-organiser: Young Researchers in Mathematics 2021, Young Researchers in Algebraic and Analytic Number Theory 2021.

Conference Organiser: 'Women in Mathematics Research Workshop' 2020 with AMSP.

Reading Group Organiser: Random Multiplicative Functions Reading Group.

References

Available on Request