

# Ayesha Hussain

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*PhD student interested in Analytic Number Theory, with particular focus on random multiplicative functions.*

(Correct as of 4th February 2022)

## Research

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**The Limiting Distribution of Character Sums:** <https://doi.org/10.1093/imrn/rnab194>

Published at 'International Mathematical Research Notices' (IMRN)

**The Limiting Distribution of Real Character Sums:**

In Progress

## Education

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**University of Bristol**

*PhD Student*

*2018–Present*

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

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**University of Bristol**

*Undergraduate Tutor*

*Autumn 2018 – Present*

- 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 – Present*

One-on-one Mathematics tutor.

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

### **Seminar Talks**

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#### **University of Warwick**

*Warwick Number Theory Seminar*

*January 2021*

Distributions of Character Sums

#### **University of Bristol**

*Postgraduate Seminar*

*October 2021*

The Man, The Myth, The Legend(re)

#### **University of Oxford (Virtual)**

*Oxford Junior Number Theory Seminar*

*May 2021*

Distributions of Character Sums

#### **University of Montreal (Virtual)**

*Mobius ANT Seminar*

*March 2021*

Distributions of Character Sums

#### **University College London**

*London Junior Number Theory Seminar (Virtual)*

*March 2021*

What Is a Random Multiplicative Function

#### **University of Bristol (Virtual)**

*Postgraduate Seminar*

*November 2020*

Introduction to Random Multiplicative Functions

#### **University of Bristol**

*Linfoot Seminar*

*March 2020*

Distributions of Character Sums

#### **University of Bristol**

*Postgraduate Seminar*

*November 2019*

Paths of Dirichlet Characters

### **Conference Talks**

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#### **University of Bristol (Virtual)**

*MINGLE 2021*

*September 2021*

The Probability Behind Yahtzee

#### **Virtual Conference**

*CANT Workshop*

*May 2021*

Distributions of Character Sums

#### **Virtual Conference**

*Women In Number Theory and Geometry*

*January 2021*

Distributions of Character Sums

#### **Virtual Conference**

*3rd BYMAT Conference*

*December 2020*

Distributions of Character Sums

<b>University of Bristol (Virtual)</b>		
<i>MINGLE 2020</i>		<i>September 2020</i>
Animals and Counting		
<b>University of Warwick</b>		
<i>Young Researchers in Algebraic and Analytic Number Theory</i>		<i>November 2019</i>
Paths of Dirichlet Characters		

## Conferences

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<b>University of Bristol</b>		
<i>Young Researchers in Number Theory, Co organiser</i>		<i>August 2021</i>
<b>Virtual Conference/Paris</b>		
<i>Summer School in Analytical Number Theory</i>		<i>June 2021</i>
<b>University of Bristol</b>		
<i>Young Researchers in Mathematics, Co organiser</i>		<i>June 2021</i>
<b>City University of New York</b>		
<i>CANT Workshop</i>		<i>May 2021</i>
<b>Insitut Mittag Leöffler</b>		
<i>Number Theory Research Program</i>		<i>January-March 2021</i>
<b>Virtual Conference</b>		
<i>Women In Number Theory and Geometry</i>		<i>January 2021</i>
<b>Virtual Conference</b>		
<i>3rd BYMAT Conference</i>		<i>December 2020</i>
<b>Virtual Conference</b>		
<i>Black Heroes of Mathematics Conference</i>		<i>October 2020</i>
<b>University of Bristol</b>		
<i>Heilbronn Annual Conference 2020</i>		<i>September 2020</i>
<b>University of Warwick</b>		
<i>Young Researchers in Algebraic Number Theory</i>		<i>November 2019</i>
<b>University of Oxford</b>		
<i>Warwick-Oxbridge-Manchester-Bristol-London (WOMBL)</i>		<i>September 2019</i>
<b>University of Bristol</b>		
<i>Heilbronn Annual Conference 2019</i>		<i>September 2019</i>
<b>Grand Hotel San Michele, Cetraro, Italy</b>		
<i>Symposium on Analytic Number Theory</i>		<i>July 2019</i>
<b>University of Bristol</b>		
<i>CMI-HIMR Summer School in Computational Number Theory</i>		<i>June 2019</i>
<b>University of Mississippi</b>		
<i>NSF-CBMS Conference: L-Functions and Multiplicative Number Theory</i>		<i>May 2019</i>
<b>University of Cambridge</b>		
<i>Warwick-Oxbridge-Manchester-Bristol-London (WOMBL)</i>		<i>January 2019</i>
<b>University of Sheffield</b>		
<i>Young Researchers in Algebraic Number Theory</i>		<i>November 2018</i>

## Outreach

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### **University of Bristol**

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

November 2021

### **University of Bristol**

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

November 2020

### **University of Bristol**

*Women in Mathematics Research*

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

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**Programming Experience:** Experience using Latex, Python, SQL, 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

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### **Dr Jonathan Bober**

*University of Bristol*

PhD supervisor.

jwbober@gmail.com

### **Dr Jens Funke**

*University of Durham*

Final year project supervisor.

jens.funke@durham.ac.uk

### **Dr Thanasis Bouganis**

*University of Durham*

athanasios.bouganis@durham.ac.uk

Final year project supervisor.