

## Muhammad Atif Zaheer

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### Research Interests

Analytic number theory, particularly moments and pair correlation of the zeros of Riemann zeta function

### Education

Pennsylvania State University, State College, PA, USA  
Ph.D. in Mathematics, 2024 – 2029 (expected).

Lahore University of Management Sciences, Lahore, Punjab, Pakistan  
M.S. in Mathematics, 2022 – 2024.

Thesis: *On Pair Correlation Conjecture and Bounds for the Averages of Montgomery's  $F$ -function*  
Thesis advisor: Emanuel Carneiro.

National University of Sciences and Technology, Islamabad, Punjab, Pakistan  
B.S. in Mathematics, 2018 – 2022

### Professional Experience

Graduate Teaching Assistant, Pennsylvania State University, 2024 – present

Graduate Teaching Assistant, Lahore University of Management Sciences, 2022 – 2024

### Awards and Honors

Jack and Eleanor Pettit Scholarship in Science, September 2024  
Eberly College of Science, Pennsylvania State University

Invitation to IAS/PCMI Graduate Summer School, July 2024

Invited to attend fully funded Graduate Summer School on *Motivic Homotopy Theory* organized by Institute for Advanced Study (IAS) and Park City Mathematics Institute. (Did not attend.)

National Management Foundation Gold Medal, June 2024  
Lahore University of Management Sciences

Dean's Honor Roll, June 2024  
Lahore University of Management Sciences

100% Merit Scholarship Award, 2022 – 2024  
Lahore University of Management Sciences

High Achiever Award, 2022  
National University of Sciences and Technology

Winner - Pakistan Calculus Contest, 2022  
IBA Sukkur University.

Second Position - National Undergraduate Mathematics Contest, 2021  
Punjab University, National Mathematical Society of Pakistan.

Honour Roll, 2019  
National University of Sciences and Technology

### **Talks**

On Pair Correlation Conjecture and Bounds for the Averages of Montgomery's  $F$ -function, May 2024  
Thesis defense, Lahore University of Management Sciences

The Pair Correlation of the Zeros of the Riemann Zeta Function, November 2023  
Graduate Student Seminar, Lahore University of Management Sciences

Google Page Rank Algorithm, June 2023  
Guest lecture for MATH 120 Linear Algebra, Lahore University of Management Sciences

### **Teaching**

Instructor  
Math 26: Plane Trigonometry, Penn State University, Fall 2025

Teaching Assistant  
Math 26: Plane Trigonometry, Penn State University, Summer 2025  
Math 220: Matrices, Penn State University Summer 2025  
Math 441: Matrix Algebra, Penn State University, Fall 2024, Spring 2025  
Math 320: Algebra I, Lahore University of Management Sciences, Spring 2024  
Math 230: Probability, Lahore University of Management Sciences, Fall 2023  
Math 120: Linear Algebra, Lahore University of Management Sciences, Summer 2023  
Math 205: Introduction to Analysis I, Lahore University of Management Sciences, Spring 2023  
Math 101: Calculus I, Lahore University of Management Sciences, Fall 2022

### **Conferences and Workshops Attended**

MPS Conference on Universal Statistics in Number Theory, Simons Foundation, September 2025  
Midwest Arithmetic Geometry and Number Theory Series, Ohio State University, March 2025  
The Legacy of John Tate, and Beyond, Harvard University, March 2025

## Outreach

Conducted LUMS Math Circles at Government Boys High School, Sukamaidan, Skardu, Gilgit Baltistan for two weeks in July 2023 as part of Summer Fiesta organized by the government of Gilgit Baltistan in collaboration with LUMS Learning Institute. ([link](#))

## Miscellaneous

Mentioned in the acknowledgement section of the fourth editions of texts *Analysis I* and *Analysis II* by Terence Tao published by Springer and Hindustan Book Agency.

Organized *Salam Sessions* for LUMS Students' Mathematical Society (LSMS).

Led a bootcamp session on abstract algebra to help newly admitted mathematics graduate students at Penn State University prepare for their qualifying exams.

Served as an organizer for the Number Theory Student Seminar at Penn State University.