

Abdullah Ahmed

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EDUCATION

Lahore University of Management Sciences, August 2020 – May 2024 <i>Bachelor of Science in Mathematics, Minor in Physics</i>	Lahore, Pakistan CGPA: 3.98/4.00
The Lahore Alma, August 2018 – May 2020 <i>A Levels, Cambridge International Examinations</i>	Lahore, Pakistan Grades: 5 A*s

ACADEMIC DISTINCTIONS

Dean's Honors List Scholarship <i>Lahore University of Management Sciences</i>	August 2021 – Present Lahore, Pakistan
<ul style="list-style-type: none">Placed 3rd overall after Junior Year, and qualified for a 100% merit scholarship.Placed 4th overall after Sophomore Year, and qualified for a 50% merit scholarship.Placed 5th overall after Freshmen Year, and qualified for a 50% merit scholarship.	
International Olympiad Teams <i>Pakistan</i>	2019 – 2020
<ul style="list-style-type: none">Selected for the reserve Pakistan International Math Olympiad Team in 2020.Selected and participated as part of the Pakistan team in the Asian-Pacific Math Olympiad in 2020.Selected and participated as part of the Pakistan team in the Iranian Geometry Olympiad.	
National Mathematics Talent Contest <i>Pakistan</i>	2019
<ul style="list-style-type: none">Placed 17th among 3000 participants in Pakistan.	
High School Merit Scholarship <i>The Lahore Alma</i>	2015 – 2020 Lahore, Pakistan
<ul style="list-style-type: none">Earned and stayed on a 100% merit scholarship throughout my A Levels.	

UNDERGRADUATE PROJECTS/PRESENTATIONS

Senior Thesis on Symplectic Geometry <i>Supervisor: Dr. Shaheen Nazir</i>	2023 – Present
<ul style="list-style-type: none">Introduced the fundamentals of Symplectic Geometry and explored their role in toric varieties.	
Directed Reading Project on Manifold Theory and De Rahm Cohmology <i>Supervisor: Dr. Haniya Azam and Dr. Shaheen Nazir</i>	Summer 2023
<ul style="list-style-type: none">Primarily explored the contents of the book "An Introduction to Manifolds" by Loring W. Tu.(Book survey)	
Summer Reading Group on Enumerative Combinatorics <i>Supervisor: Dr. Shaheen Nazir</i>	Summer 2023
<ul style="list-style-type: none">Primary text followed was Richard P. Stanley's "Enumerative Combinatorics".	
Course Project and Presentation on Elliptic Curves <i>MATH 426: Elements of Algebraic Geometry</i>	Spring 2023
<ul style="list-style-type: none">Motivated the topological and algebraic structure of Elliptic Curves through the Chord-Tangent Law and toric parameterization.Was included in a larger group project report on Complex Projective Cubic Plane Curves.(PDF)	
Course Project and Presentation on Knot Theory <i>MATH 407: General Topology</i>	Spring 2023
<ul style="list-style-type: none">Introduced and proved foundational/classical results in Knot Theory.(Handwritten Project Report)	
Directed Reading Project on Algebraic and Analytic Number Theory <i>Supervisor: Dr. Shaheen Nazir</i>	Spring 2022
<ul style="list-style-type: none">Explored foundational ideas of Algebraic and Analytic Number theory primarily through Kenneth Ireland and Micheal Rosen's "A Classical Introduction to Modern Number Theory".	

Course Project and Presentation on Equivalence of Completeness property in Reals Spring 2022

MATH 309: Introduction to Analysis II

- Presented a proof of the equivalence of the Bolzano-Weierstrass Theorem and the Completeness of Reals.

Course Project on Kepler's Laws and Orbits

Spring 2021

PHY 100: Experimental Physics Lab I

- Built a program to simulate the Moon's orbit around the Earth given different initial conditions. (**Lab Project Report**)

Course Project on Generalized Towers of Hanoi

Fall 2020

CS 100: Computational Problem Solving

- Built a program that solved the general n-towers k-pegs Towers of Hanoi problem recursively.

GRADUATE COURSES

MATH 426: Elements of Algebraic Geometry (Spring 2023): A+

MATH 407: General Topology (Spring 2023): A+

MATH 325: Convex Optimisation (Spring 2022): A

PHY 404: Relativistic Electrodynamics (Fall 2022): A

PHY 412: Advanced Quantum Mechanics (Fall 2022): A-

MATH 521: Advanced Algebra (IMM Variant) (Fall 2023): Pending

MATH 4013: Differential Geometry (IMM Variant) (Fall 2023): Pending

MATH 4102: Qualitative Differential Equations (IMM Variant) (Fall 2023): Audit

TEACHING AND WORK EXPERIENCE

Teaching Assistant

Fall 2023

MATH 309: Introduction to Analysis II and MATH 204: Introduction to Formal Mathematics

LUMS

- Graded assignments/quizzes, and held tutorials.

Teaching Assistant

Spring 2023

MATH 205: Introduction to Analysis I

LUMS

- Graded assignments/quizzes, and held tutorials.

Teaching Assistant

Fall 2022

PHY 101: Mechanics

LUMS

- Graded assignments/quizzes, and held tutorials.

Math Circles Instructor and Consultant

January 2023 – Present

Lahore University of Management Sciences

- Conducted interactive math circles in the underprivileged and remote government schools of Gilgit Baltistan in the Summer Fiesta GB 2023. (**Article**)
- Went to local government schools to conduct engaging math circles in Fall 2023.
- Consulting in writing the first LUMS Math Circles book volume. (**Website**)

Director Salam Sessions

August 2022 – Present

LUMS Students' Mathematics Society

- Organized seminar-type talks by professors centered around the applications of mathematics in their varying scientific fields.
- Launched and spearheaded *Fermat's Enigma* sessions, where students gather to discuss famous mathematical puzzles.

In-person and Online Tutor

August 2021 – Present

Private

- Tutored multiple high school students in O/A Level Mathematics, Physics, and Biology.

SEMINARS

John Conway Spirited Seminar Series

May 2021 – Present

Lahore University of Management Sciences

- Regularly attended and participated in this weekly seminar series with guest speakers coming from all over the world. (**Webpage**)

EXTRA-CURRICULAR ACHIEVEMENTS/SKILLS

- Selected to become the LUMS Basketball Team Captain for 2023-2024.
- Became the LUMS under-70 kg Powerlifting Champion in 2023.
- Possess programming proficiency in Python, C++, Matlab, and LaTeX.
- Qualified for the Lahore Junior Chess Team in 2019.