

# Swapnamoy Kader

PhD Student in Pure Mathematics, Malbazar, India - 735221

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## INTRODUCTION

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I am a dedicated and research-driven PhD student in Pure Mathematics at Kent State University, where I also serve as a Graduate Assistant. My academic background includes a Bachelor's and Master's in Mathematics from Jadavpur University, India, with a strong record of academic excellence. My research interests primarily lie in analysis and I am committed to contributing meaningful work to these areas. Alongside research, I am deeply involved in teaching and value the opportunity to share mathematics through clear, structured, and student-centered instruction. I am actively seeking opportunities that allow me to continue to advance my research while contributing to collaborative academic environments.

## RESEARCH INTERESTS

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- Convex Geometry
- Geometric Measure Theory
- Real and Complex Analysis
- Applications in Analysis and Geometry

## EDUCATION

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**Kent State University**, Kent, OH-USA 2025 —  
Doctor of Philosophy in Pure Mathematics. **CGPA:**  
**Dissertation Title:** TBD.

**Jadavpur University**, Kolkata, India 2022 — 2024  
Master of Science in Mathematics. **CGPA: 9.50/10.00**  
**Specialization:** Functional Analysis, Operator Theory, and Algebra.  
**Dissertation Title:** A Study of the Sharp Bound for Hankel Determinant of the Third Kind of Convex Functions.

**Jadavpur University**, Kolkata, India 2019 — 2022  
Bachelor of Science with Honors in Mathematics. **CGPA: 8.79/10.00**  
**Minors:** Statistics, Computer Science, and Number Theory.

**Caesar School**, Malbazar, India 2017 — 2019  
Higher Secondary in Science. **CGPA: 9.30/10.00**

**Caesar School**, Malbazar, India 2015 — 2017  
Secondary Qualification. **CGPA: 10.00/10.00**

## SELECTED COURSES

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### Master's Courses

- Advanced Functional Analysis
- Operator Theory
- Operator Algebra
- Advanced Topology

### Bachelor's Courses

- Real Analysis
- Complex Analysis
- Number Theory
- Probability and Statistics

## LANGUAGES

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- English (Full Professional Proficiency)
- Bengali (Native or Bilingual Proficiency)
- Hindi (Limited Working Proficiency)

## OTHER COURSES

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- Introduction to Mathematical Thinking By Stanford University via Coursera
- Introduction to LaTeX By GEO University
- MATLAB and Octave for Beginners by EPFL via eDX
- Introduction to Actuarial Science By ANU via eDX
- Cryptography I By Stanford University via Coursera

## AWARDS

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- **Certificate Of Merit** from the Central Board of Secondary Education, India. Nov 2017  
Outstanding performance and obtaining Grade 'A1' in all five subjects.
- **Gold Medal** from the All India Schools Mathematics Teachers Association. Mar 2017  
Passed the 'Intermediate' National Mathematics Olympiad Contest with 93%.
- **Gold Medal** from the All India Schools Mathematics Teachers Association. Feb 2016  
Passed the 'Junior' National Mathematics Olympiad Contest with 91%.
- **Certificate Of Merit** from the National Center for Financial Education, India.  
Outstanding performance in the National Financial Literacy Assessment Test 2014-15, 2015-16, 2016-17.

## SEMINARS AND CONFERENCES

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- **International Conference on Mathematical Analysis and Applications in Modeling** Aug 2023  
Participated as an attending student.  
Gained exposure to different fields of Mathematics.
- **Departmental Colloquium** Dec 2022  
Delivered a speech on "*Riemann Hypothesis, Prime Counting Functions and their Development*".
- **Departmental Colloquium** Dec 2019  
Delivered a speech on "*Fibonacci Series and the Elegance of the numbers 3, 6 and 9*".

## SCHOLARSHIPS

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- Swami Vivekananda Merit Cum Means Scholarship Scheme. 2022 — 2024

## SOFTWARE AND PROGRAMMING SKILLS

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- LaTeX
- Mathematica
- MATLAB
- C
- C++

## RESEARCH EXPERIENCES

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- Working with Prof. Syamal Kumar Basak (former professor of Presidency University, Kolkata, India), on “*Collatz Conjecture*”. (in preparation)
- Currently Working on:
  - The formulae of the fifth coefficient of a function in the Carathéodory Class.
  - The bound of the Hermitian Toeplitz Determinant of the fourth order of starlike functions.

## WORK EXPERIENCE

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- Tutored school students on Basic Algebra, Geometry, and Calculus. (part time)
- Mentored University Juniors on Analysis and Algebra.

## TEACHING

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- **FALL 2025:**
  - MATH 11010: Algebra for Calculus
- **SPRING 2026:**
  - MATH 11022: Trigonometry

## EXTRA CURRICULAR

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- **Interests:**
  - Badminton
  - Football (Soccer)
  - Chess
  - Photography
- **Notable Positions:**
  - Departmental Placement Coordinator in Jadavpur University for 2023-24.
  - School Prefect in Caesar School for 2017-18.
- **Associations:**
  - Jadavpur University Photographic Club
  - Jadavpur University Arts and Literary Society
  - Inter-school Competition Team
  - Inter-school Quiz Team