

# Akidul Haque



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West

Lee

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## Objective:

I am a mathematics graduate passionate about applying mathematical principles to real-world challenges. I specialize in computational methods and theoretical frameworks and eager to enhance my expertise in analytical problem-solving and quantitative reasoning in mathematics and statistics.

## Education:

Aug,2023 – ongoing

■ **PhD in Applied and Industrial Mathematics and Masters in Bio-statistics (Dual Degree program), University of Louisville, KY, USA.**

I have successfully passed all the required qualifying exams (analysis, algebra, and modeling) and completed required course works.

2023 – 2024

■ **Masters of Science (M.S) in Applied Mathematics, University of Louisville, KY, USA.**

2020 – 2021

■ **Masters of Science (M.S.)(Thesis based) in Mathematics, University of Dhaka, Bangladesh.**

**Thesis title:** *Harvesting Strategies and Environmental Fluctuations on Holling-types Predator-prey Models.*

2016 – 2019

■ **Bachelor of Science (B.S.) Honours in Mathematics, University of Dhaka, Bangladesh.**

**Honours Project:** *Numerical Studies of Two-Point Boundary Value Problem.*

## Publications:

Journal Publication

1. Pritam Saha, Akidul Haque, Md. Shahidul Islam, and Uttam Ghosh, "Dynamic complexities of a modified Leslie–Gower model in deterministic and stochastic environments.",*Modeling Earth Systems and Environment*,January 2025, DOI: 10.1007/s40808-024-02179-w.
2. Akidul Haque, Pritam Saha, Shubhadeep Ghosh, Shahidul Islam, and Uttam Ghosh, "Effects of environment fluctuation and allee on predator of a Brazykin type population model."(submitted)
3. MD Rakibul Hasan, Parker Frank, Saifur Rahman, Andrew Harrison, Sankar Chowdhury, and Akidul Haque, "Behavioural Interventions, Mental Health, and Microbial Dysbiosis as Intersecting Determinants of HIV PrEP Adherence: A Mixed-Methods Study Among African American Adults in the Southern United States."(submitted)
4. Akidul Haque, Md. Anuar Hossen, and Shahidul Islam, "Dynamical Behavior Analysis of anti-control Lorenz System."(submitted)

## Publications: (continued)

- Papers in preparation
- 1. Dan Han, Akidul Haque, "Spatiotemporal Dynamic Lag Models for Nowcasting COVID-19 Rates Using Waste Water Data."
  - 2. Dan Han, Akidul Haque, "Relationship between the wastewater virus level and underreported positive COVID-19 cases."
  - 3. Akidul Haque, Md. Shahidul Islam, and Uttam Ghosh, "Mathematical modeling on Dengue and Chikungunya Co-infection disease."
  - 4. Md. Anuar Hossen, Akidul Haque, Md. Shahidul Islam, and Uttam Ghosh, "Mathematical Analysis to Control Invasive Species in Competition with Native Species."

## Research Interest:

My research focuses on the mathematical and statistical modeling of biological and environmental systems, with an emphasis on linear and nonlinear dynamical systems, epidemic and infectious disease modeling, and ecosystem dynamics. I also have a strong interest in applying Bayesian statistics and time series forecasting to analyze and predict complex behaviors in ecological and epidemiological contexts.

## Skills:

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|---------------|---|
| Languages     | Proficient in reading, writing, and speaking in both English and Bengali. |
| Coding        | Matlab, Fortran, C, Mathematica ,R.                                       |
| Soft Packages | Latex, MS word, MS Powerpoint, Excel.                                     |
| Misc          | Academic research, Data- cleaning, Data Analysis and Teaching.            |

## Awards:

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|--------------|---|
| 2023-ongoing | Graduate Teaching Assistantship of University of Louisville,KY,USA.       |
| 2021-2022    | National Science and Technology Fellowships for Master's Thesis research. |
| 2021         | Honours merit-based Scholarship of the University of Dhaka.               |

## Extra-Curricular Activities:

1. General Member at Graduate Student Council of University of Louisville.
2. General Member of Dhaka University Model United Nations.
3. Volunteer at a non-profitable social organization named "Light of Hopes Youth Foundation."
4. Program Co-ordinator and founding member of Mathematics Photography club, University of Dhaka.
5. Member of "Badhon"( A student-based Blood Donations Group).