

ZAKIA HOSSAIN

Teaching Assistant

Department of Mathematics and Statistics, University of New Mexico, Albuquerque, NM 87131, USA.

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[LinkedIn](#) | [Google Scholar](#)

EDUCATION

- **Ph.D. Student in Applied Mathematics** **Expected Graduation - Fall 2026**
University of New Mexico, Albuquerque, New Mexico, USA
- **M.S. in Mathematics** **August 2012**
Jahangirnagar University, Savar, Dhaka, Bangladesh
- **B.S. in Mathematics** **September 2011**
Jahangirnagar University, Savar, Dhaka, Bangladesh

EMPLOYMENT

- **Teaching Assistant** **January 2021 - Present**
Department of Mathematics and Statistics
University of New Mexico, Albuquerque, New Mexico, USA
- **Senior Lecturer** **December 2017 - July 2018**
Department of Quantitative Sciences
IUBAT-International University of Business Agriculture and Technology, Dhaka, Bangladesh
- **Junior Lecturer** **January 2013 - December 2017**
Department of Quantitative Sciences
IUBAT-International University of Business Agriculture and Technology, Dhaka, Bangladesh

TEACHING EXPERIENCE

Academic Roles at the University of New Mexico:

Instructor of Record

- Math 316: Applied Ordinary Differential Equations Summer 2022, Summer 2023, Summer 2024
- Math 1512: Calculus I Fall 2024, Spring 2025

Teaching Assistant (Recitation Leader)

- Math 2531: Calculus III Spring 2024

Grader & Tutor

- Math 314: Linear Algebra with Applications Spring 2021 - Fall 2022, Fall 2023, Spring 2024
- Math 312: Partial Differential Equations for Engineering Spring 2023
- Math 504: Numerical Linear Algebra Spring 2023
- Math 316: Applied Ordinary Differential Equations Fall 2024

Teaching at IUBAT: (All Classes, Instructor of Record, January 2013 - July 2018)

- CSE 103: Fundamentals of Computers and Applications
- MAT 107: Basic Mathematics
- MAT 147: Applied Calculus
- MAT 167: Calculus I
- MAT 197: Calculus II
- MAT 219: Linear Algebra
- MAT 247: Numerical Analysis

RESEARCH INTERESTS

- Mathematical biology
- Compartmental models in epidemiology
- Bifurcation analysis
- Optimal transport and Bayesian inversion
- Uncertainty quantification
- Numerical solution for PDEs

PUBLICATIONS

- [1] Ahsan Ali, Laek Sazzad Andallah, and **Zakia Hossain**. Numerical solution of a fluid dynamic traffic flow model associated with a constant rate inflow. *American Journal of Computational and Applied Mathematics* 5.1 (2015): 18-26.
- [2] **Zakia Hoosain**, and Helen J. Wearing. Modeling of infectious diseases using waning of antibody and seasonality. *Bulletin of Mathematical Biology* (In preparation).
- [3] **Zakia Hossain**. Short Run Profit Maximization based on TR-TC and MR-MC Approach. Jahangirnagar University (MS Thesis, 2012).

AWARDS / HONORS

- Jahangirnagar University Academic Merit Scholarship (2007-2011) for outstanding academic achievement in B.Sc. and M.S. result.

TECHNICAL SKILLS

- **Programming Languages:** Python, MATLAB, C/C++, Julia
- **Parallel Computing:** MPI, OpenMP
- **Version Control and Collaboration:** Git, GitHub
- **Open-Source Libraries:** PyAMG, Firedrake
- **Operating Systems:** Mac, Windows
- **High Performance Computing (HPC):** Cluster systems, job scheduling, performance optimization

TRAININGS & WORKSHOPS

- Values and Ethics in 21st Century Teaching January 9-13, 2013. Faculty training program, 23rd Academic Retreat organized by IUBAT.

LEADERSHIP POSITIONS

- Vice President, SIAM Student Chapter at UNM (October 01, 2021 – December 31, 2023).

PROFESSIONAL MEMBERSHIPS

- American Mathematical Society.
- Society for Industrial and Applied Mathematics, Student Chapter, University of New Mexico.