Zakia Hossain

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

Website: zakia-hossain.github.io

Education

– **Ph.D. Student in Applied Mathematics**, University of New Mexico, Albuquerque, USA
Expected Fall 2026

– **M.S. in Mathematics**, Jahangirnagar University, Dhaka, Bangladesh   *August 2012*

– **B.Sc. in Mathematics**, Jahangirnagar University, Dhaka, Bangladesh   *September 2011*

Professional Experience

– **Teaching Assistant**, Department of Mathematics and Statistics, University of New Mexico
January 2021 – Present

– **Senior Lecturer**, Department of Quantitative Sciences, IUBAT   *December 2017 – July 2018*

– **Junior Lecturer**, Department of Quantitative Sciences, IUBAT *January 2013 – December 2017*

Research Interests

– Mathematical biology

– Compartmental models in epidemiology

– Bifurcation analysis

Teaching Experience

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*

– **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*

At IUBAT

– **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

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.

Training & Workshops

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

Awards

– **Jahangirnagar University Academic Merit Scholarship** (2007-2011): Awarded for outstanding academic achievement in B.Sc. and M.S. results.

Technical Skills

– **Programming Languages:** Python, MATLAB

– **Parallel Computing:** MPI

– **Version Control and Collaboration:** GitHub

– **Open-Source Libraries:** PyAMG, Firedrake

– **Operating Systems:** Mac, Windows

– **High Performance Computing (HPC):** Cluster systems, job scheduling, performance optimization

Leadership Positions

– **Vice-President**, SIAM Student Chapter at UNM   *October 1, 2021 – December 31, 2023*

Professional Memberships

– American Mathematical Society

– Society for Industrial and Applied Mathematics, Student Chapter, University of New Mexico

Interests

– Traveling, exploring new ideas, and mentoring students