Md Shah Alam, PhD.

Office: Dickey-Lawless 104C
Department of Mathematics, Huston-Tillotson University
Austin, Texas, 78702
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Education

Doctor of Philosophy in Mathematics, University of Houston, Houston, Texas August, 2025
Dissertation: Global Existence of Solutions for A Class of NonLocal
Reaction-Diffusion Systems and Their Diffusive Limit.
Advisor: Dr. Jeffrey Morgan
Other Committee Members: Dr. William Fitzgibbon, Dr. Jiwen He and Dr. Heidar Malki

Master of Science in Mathematics, Texas Tech University, Lubbock, Texas December, 2018
Project Title: Parameter Sensitivity Analysis of Dynamics of Ovarian Tumor
Growth Model.
Advisor: Dr. Angela Peace
Other Committee Member: Dr. Aminur Rahman

Bachelor of Science in Mathematics, University of Dhaka, Dhaka, Bangladesh July, 2016
B.S. Project Title: Map Coloring and Some of Its Applications.
Advisor: Dr. Tania Sharmin Khaleque.

Work Experience

- **Assistant Professor of Mathematics (Tenure-Track)** August, 2025 - Current
  Huston-Tillotson University, Austin, Texas.
  - Teaching
    - College Algebra (MATH 1314) - Fall 2025 - 2 Sections
    - Corequisite Algebra (MATH 03-1314) - Fall 2025
    - Pre-Calculus (MATH 2412) - Fall 2025
- **Instructor of Record, Graduate Teaching Assistant** August, 2020 - August, 2025
  University of Houston, Houston, Texas.
  - Teaching
    - College Algebra (MATH 1314) - Spring 2025
    - Calculus-I (MATH 2413) - Summer 2021 (Online), Fall 2023, Spring 2024, Summer 2025
    - Calculus-II (MATH 2414) - Spring 2021 (Online), Spring 2022 (Online), Summer 2024 (Online)
  - Leading the TAs team for Statistics for Science (MATH 3339) - Fall 2022 and Spring 2023
  - Tutoring and grading
    - Fall 2020 - Statistics for Science (MATH 3339-Online), Introduction to Probability and Statistics (MATH 2311-Online)
    - Summer 2021 - Calculus for Business and the Life Sciences (MATH 1314 - Online)
    - Fall 2021 - Probability (MATH 3338)
    - Spring 2022 - Probability (MATH 3338)
    - Summer 2022 - Calculus for Business and the Life Sciences (MATH 1314), Precalculus (MATH 2312)
    - Fall 2022 - Data Science and Statistical Learning (MATH 4323), Linear Models and Design of Experiments (MATH 6357)
    - Summer 2023 - Calculus-III (MATH 2415-Online)
    - Spring 2024 - Linear Algebra (MATH 2318)
    - Fall 2024 - Engineering Mathematics (MATH 3321)

- **Lecturer of Mathematics** August, 2019 - December, 2019
  North South University, Dhaka, Bangladesh.
  - Teaching
    - Precalculus (MAT 116) - Fall 2019 - 3 sections.
    - Calculus-I and Analytic Geometry (MAT 120) - Fall 2019 - 2 sections.
- **Graduate Part-Time Instructor, Graduate Teaching Assistant** August, 2017 - December, 2018
  Texas Tech University, Lubbock, Texas.
  - Teaching
    - College Algebra (MATH 1320) - Fall 2018
  - Tutoring and grading
    - Fall 2017 - Higher Mathematics for Engineers and Scientists II (MATH 3351)
    - Spring 2018 - Calculus III with Applications (MATH 2450), Linear Algebra (MATH 2360)
    - Summer 2018 - Calculus I with Applications (MATH 1451)

Publications

- The impact of the COVID-19 pandemic on education in Bangladesh and its mitigation. Bulletin of Biomathematics 2(1), April 2024, Vol. 2 No. 1
- Marburg Virus and Risk Factor Among Infected Population: A Modeling Study. Malaysian Journal of Mathematical Sciences, March 2024, Vol. 18, No. 1
- Novel Risk Factors for Diabetes: A Comprehensive Analysis for Enhanced Disease Diagnosis. International Journal of Ground Sediment & Water, March 2024, Vol. 19
- Forest Dynamics and the Analysis of a Reaction-Diffusion Forest Model. GANIT: Journal of Bangladesh Mathematical Society, Vol. 43 No. 2 (2023)
- Parameter Sensitivity and Qualitative Analysis of Dynamics of Ovarian Tumor Growth Model with Treatment Strategy. Journal of Applied Mathematics and Physics, Vol.8 No.6, June 2020

Conference Presentations

Parameter Sensitivity Analysis of Dynamics of Ovarian Tumor Growth Model. The 1st Annual Meeting of SIAM Texas-Louisiana Section, October, 2018.

Skills

- Proficient in LaTeX, MATLAB, FORTRAN, R, MATHEMATICA and PYTHON
- CCS, CANVAS, Blackboard, Teams, Zoom, Google Classroom, Pearson MyLab, Desmos.
- Active learning method such as group discussion, problem solving exercises, think-pair-share etc. for teaching.
- Excellent communication and interpersonal skills.
- Strong analytical and problem-solving abilities.

Research Interest

- Nonlocal Reaction-Diffusion System
- Ordinary and Partial Differential Equations
- Mathematical Analysis
- Mathematical Biology
- Numerical PDE
- Machine Learning

Reference

Name: **Dr. Jeffrey Morgan**
Position: Professor, Department of Mathematics. Associate Provost of Education, Innovation and Technology.
Institution: University of Houston
Email: jjmorgan@central.uh.edu
Phone: +17137433455
Relation: PhD Advisor

Name: **Dr. Nicholas Leger**
Position: Associate Professor of Instruction, Department of Mathematics
Institution: University of Houston
Email: nmleger@central.uh.edu
Phone: +17137436751
Relation: Observer of my teaching class/Teaching Mentor.

Name: **Dr. Bernhard G. Bodmann**
Position: Professor and Chairman, Department of Mathematics
Institution: University of Houston
Email: bgb@central.uh.edu
Phone: + 17137433581
Relation: Observer of my teaching class/Teaching Mentor.

Name: **Dr. Farzana Hussain**
Position: Professor and Chairman, Department of Mathematics
Institution: Huston-Tillotson University
Email: fhussain@htu.edu
Phone: + 15125056454
Relation: Colleague and Professional Mentor