

Brief Profile

Name: **Mainul Hossain**

Designation: **Assistant Professor**

Department: **Mathematics**

Email: getmainul@gmail.com

Highest Qualification (Year and Name of the University or Institute if applicable) :
Ph.D. (2023, Visva-Bharati)

Teaching Experience: **3 months at current institution**

Subjects Taught: (Mention broad areas only) Calculus, Numerical Analysis, Biomathematics, C programming

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Research Experience: 6 years (including PhD)

Research Interest: Mathematical Ecology

Awards or Recognitions received (Achievements): Topper in B.Sc. and M.Sc.

List of Selected Publications:

1. **Hossain, M.**, Garai, S., Jafari, S., Pal, N., 2022a. Bifurcation, chaos, multistability, and organized structures in a predator–prey model with vigilance. Chaos 32, 063139. <https://doi.org/10.1063/5.0086906>
2. **Hossain, M.**, Garai, S., Karmakar, S., Pal, N., Chattopadhyay, J., 2022b. Impact of vigilance on the density variations in a food chain model. Ecological Complexity 50, 100996. <https://doi.org/10.1016/j.ecocom.2022.100996>

3. **Hossain, M.**, Kumbhakar, R., Pal, N., 2022c. Dynamics in the biparametric spaces of a three-species food chain model with vigilance. *Chaos, Solitons & Fractals* 162, 112438. <https://doi.org/10.1016/j.chaos.2022.112438>
4. **Hossain, M.**, Kumbhakar, R., Pal, N., Kurths, J., 2023. Structure of parameter space of a three-species food chain model with immigration and emigration. *Nonlinear Dyn.* <https://doi.org/10.1007/s11071-023-08573-w>
5. **Hossain, M.**, Pal, N., Samanta, S., 2020a. Impact of fear on an eco-epidemiological model. *Chaos, Solitons & Fractals* 134, 109718. <https://doi.org/10.1016/j.chaos.2020.109718>
6. **Hossain, M.**, Pal, N., Samanta, S., Chattopadhyay, J., 2020b. Fear Induced Stabilization in an Intraguild Predation Model. *Int. J. Bifurcation Chaos* 30, 2050053. <https://doi.org/10.1142/s0218127420500534>
7. **Hossain, M.**, Pal, S., Kumar Tiwari, P., Pal, N., 2021a. Bifurcations, chaos, and multistability in a nonautonomous predator–prey model with fear. *Chaos* 31, 123134. <https://doi.org/10.1063/5.0067046>
8. **Hossain, M.**, Pati, N.C., Pal, S., Rana, S., Pal, N., Layek, G.C., 2021b. Bifurcations and multistability in a food chain model with nanoparticles. *Mathematics and Computers in Simulation* 190, 808–825. <https://doi.org/10.1016/j.matcom.2021.06.017>
9. Kumbhakar, R., **Hossain, M.**, Karmakar, S., Pal, N., 2024a. An investigation of the parameter space in a tri-trophic food chain model with refuge. *Mathematics and Computers in Simulation* 217, 37–59. <https://doi.org/10.1016/j.matcom.2023.10.010>

10. Kumbhakar, R., **Hossain, M.**, Pal, N., 2024b. Dynamics of a two-prey one-predator model with fear and group defense: A study in parameter planes. *Chaos, Solitons & Fractals* 179, 114449. <https://doi.org/10.1016/j.chaos.2023.114449>
11. Pal, S., **Hossain, M.**, Panday, P., Pati, N.C., Pal, N., Chattopadhyay, J., 2020. Cooperation delay induced chaos in an ecological system. *Chaos* 30, 083124. <https://doi.org/10.1063/5.0012880>
12. Pal, S., **Hossain, M.**, Samanta, S., Pal, N., 2018. Chaos Control in a Two Prey and One Predator System with Predator Switching, in: Bhattacharyya, S., Chaki, N., Konar, D., Chakraborty, U.Kr., Singh, C.T. (Eds.), *Advanced Computational and Communication Paradigms, Advances in Intelligent Systems and Computing*. Springer, Singapore, pp. 435–441. https://doi.org/10.1007/978-981-10-8237-5_42
13. Pati, N.C., Garai, S., **Hossain, M.**, Layek, G.C., Pal, N., 2021. Fear Induced Multistability in a Predator-Prey Model. *Int. J. Bifurcation Chaos* 31, 2150150. <https://doi.org/10.1142/S0218127421501509>
14. Verma, H., Antwi-Fordjour, K., **Hossain, M.**, Pal, N., Parshad, R.D., Mathur, P., 2021. A “Double” fear effect in a tri-trophic food chain model. *Eur. Phys. J. Plus* 136, 905. <https://doi.org/10.1140/epjp/s13360-021-01900-3>