

Bipin Kumar, Int. M.Sc

✉ ap_bipink@dhgsu.edu.in

☎ +91 7781903262

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Employment History

December 2024- Present 📌 **Assistant Professor**, Department of Mathematics and Statistics, Doctor Harisingh Gour Vishwavidyalaya, Sagar (M.P.)

Education

- 2021 – ongoing 📌 **Ph.D. Ongoing, National Institute of Technology Patna .**
Thesis title: *Dynamical Behaviour of Delay and Non-Delay Eco-Epidemic Models Incorporating Various Ecological Factors*
- 2015 – 2020 📌 **Int. M.Sc.**, Department of Mathematics National Institute of Technology Patna.
Thesis title: *Stability and bifurcation analysis of the prey-predator model with hunting cooperation.*
- 2015 📌 **Intermediate**, DAV High School Gopalganj, BSEB Patna.
- 2012 📌 **Matriculation**, DAV High School Gopalganj, BSEB Patna.

Research Area

Mathematical Biology, Nonlinear Dynamical System

Research Publications

Journal Articles

- 1 B. Kumar and R. K. Sinha, "The role of time delay in shaping the dynamics of hunting cooperation and prey vigilance in a predator-prey eco-epidemiology system," *Journal of Applied Mathematics and Computing*, pp. 1–28, 2025.
- 2 B. Kumar, R. K. Sinha, and S. Hussain, "Comparative analysis of eco-epidemic model with disease in prey and gestation delay in predator: Implications for population dynamics," *Advances in Continuous and Discrete Models*, vol. 2025, no. 1, p. 8, 2025.
- 3 B. Kumar, R. K. Sinha, and A. Kumar, "Dynamical behavior of leptospirosis: A comparative analysis of delayed and non-delayed eco-epidemic models," *Modeling Earth Systems and Environment*, vol. 11, no. 1, pp. 1–17, 2025.
- 4 B. kumar, "Impacts of fisheries harvesting on fish-bird model for the salton sea region," *Communications in Mathematics and Applications*, vol. 15, no. 2, Nov. 2024. 🔗 URL: <https://www.rgnpublications.com/journals/index.php/cma/article/view/2677>.

- 5 A. A. Thirthar, B. Kumar, and S. K. Verma, "Effects of predator cooperation in hunting and prey fear in a generalist predator–prey model that includes global warming phenomena," *The European Physical Journal Plus*, vol. 139, no. 12, p. 1099, 2024.
- 6 S. K. Verma and B. Kumar, "Bifurcation and pattern formation in a prey–predator model with cooperative hunting," *The European Physical Journal Plus*, vol. 139, no. 8, pp. 1–20, 2024.
- 7 B. Kumar and R. K. Sinha, "Dynamics of an eco-epidemic model with allee effect in prey and disease in predator," *Computational and Mathematical Biophysics*, vol. 11, no. 1, p. 20 230 108, 2023.

Skills

Languages  Hindi, English.
 Coding  C,C++, MATLAB, Python, $\LaTeX$

Miscellaneous Experience

Awards and Achievements

2021  **CSIR-NET JRF qualified,**
  **GATE qualified,**
 2015  **JEE Main qualified**

Conferences

1. **Paper Presentation:** *A Comparative Study of an Eco-Epidemic Model with and Without Time Delay*
Authors: Bipin Kumar, Rajesh Kumar Sinha
Conference: International Conference on Mathematical Modelling, Simulation and Nonlinear Dynamics – 2024
Venue: Bharathiar University, Coimbatore, India
Date: February 2024

2. **Paper Presentation:** *Dynamics of an Eco-Epidemic Model*
Authors: Bipin Kumar, Rajesh Kumar Sinha
Conference: National Conference on Differential Equations: Theory, Methods, and Applications
Venue: Department of Mathematics, Indian Institute of Technology Patna
Date: March 2023

Workshops

1. **7-Day High-End Workshop on Bifurcations and Chaos: Computations and Applications**

Dates: July 3–9, 2023
Sponsored by: SERB under the KARYASHALA scheme
Venue: Department of Mathematics, Indian Institute of Technology Indore

2. **Poster Presentation:** *International Workshop on Mathematical Models and Methods in Life Sciences*

Duration: 3 Days
Dates: May 13–15, 2024
Venue: Department of Engineering Sciences, ABV-IIITM Gwalior (Hybrid Mode)