




Shivaji College Faculty Details

Title	Dr.	First Name	RASHMI	Last Name	AGRAWAL	Photograph
Designation		Assistant Professor				
Address	Department of Mathematics, Shivaji College, University of Delhi, Delhi - 110027					
Office Phone No.						
Residence						
Email	rashmiagrawal@shivaji.du.ac.in					
Educational Qualifications	Ph. D					
Degree	University/Institute				Year	
Ph.D.	IIT (ISM) DHANBAD				2017	
PG	IIT (ISM) DHANBAD				2011	
UG	SSLNTMM DHANBAD, VBU HAZARIBAGH				2009	
Career Profile						
<ul style="list-style-type: none"> ➤ Since Feb 2024: Assistant Professor, Shivaji College, University of Delhi, Delhi ➤ July 2019 to March 2023: Assistant Professor, IIIT Dharwad, Karnataka ➤ August 2018 to July 2019: Ad-hoc Faculty, NIT Andhra Pradesh ➤ May 2017 to July 2018: Assistant Professor, SREC (SR University), Warangal, Telangana 						
Administrative Assignments						
Areas of Interest/Specialisation						
<p>Mathematical Ecology, Nonlinear Dynamics</p> <p>Delay Differential Equations, Stability Analysis</p>						

Subjects Taught

Linear Algebra, Calculus, Numerical Analysis, Differential Equations, Business Mathematics, Mathematical Finance, Vedic Mathematics - I, IT Skills and Data Analysis - II

Innovation Project/Research Projects (Major Grants/Research Collaboration)**Publications Profile (Research Papers/Books)**

- Juan Liu, Ranjit Kumar Upadhyay, **Rashmi Agrawal**, Anwar Zeb, Tareq Saeed, Zahid Ahmad, **“Hopf bifurcation and global stability of a predator-prey model with alternative resource and cannibalism”** Accepted in **Fractals**, 2022 (SCI Index, Impact Factor **4.555**).
- D. Jana, R. K. Upadhyay, **R. Agrawal**, Rana D Parshad, Aladeen Basheer, **“Explosive tritrophic food chain models with interference: A comparative study”** Published in **Journal of The Franklin Institute**, 357 (2020) 385-413 (SCI Index, Impact Factor **4.246**).
- Zizhen Zhang, Ranjit Kumar Upadhyay, **Rashmi Agrawal**, Jyotiska Datta, **“The Gestation Delay: A Factor Causing Complex Dynamics in Gause-Type Competition Models”** Published in **Complexity**, 2018 (2018) 1589310, (SCI index, Impact Factor **2.462**).
- **R. Agrawal**, D. Jana, R. K. Upadhyay, V. Sree Hari Rao, **“Dynamic relationship between mutual interference and gestation delay of a hybrid tritrophic food chain model”** Published in **Australian and New Zealand Industrial and Applied Mathematics Journal (ANZIAM)**, 59 (2018) 370-401 (SCI index, Impact Factor **0.581**).
- **Rashmi Agrawal**, Debaldev Jana, Ranjit Kumar Upadhyay, Sree Hari Rao Vadrevu, **“Complex dynamics of sexually reproductive generalist predator and gestation delay in a food chain model: Double Hopf-bifurcation to Chaos”** Published in **Journal of Applied Mathematics and Computing**, 55 (2017) 513 - 547 (SCI index, Impact Factor **2.196**).
- R. D. Prasad, S. Bhowmick, E. Quansah, **R. Agrawal**, R. K. Upadhyay, **“Finite time blow-up in a population model with competitive interference and time delay”** Published in **International Journal of Nonlinear Science and Numerical Simulation**, 18 (2017) 435 - 450 (SCI index, Impact Factor **2.156**).
- Ranjit Kumar Upadhyay, **Rashmi Agrawal**, **“Dynamics and responses of a predator-prey system with competitive interference and time delay”** Published in **Nonlinear Dynamics**, 83 (2016) 821-837 (SCI index, Impact Factor **5.741**).
- Debaldev Jana, **Rashmi Agrawal**, Ranjit Kumar Upadhyay, **“Ecological dynamics of Age Selective Harvesting of Fish Population: Maximum Sustainable Yield and its Control Strategy”** Published in **Chaos, Solitons & Fractals**, 93 (2016) 111-122 (SCI index, Impact Factor **9.922**).
- Debaldev Jana, **Rashmi Agrawal**, Ranjit Kumar Upadhyay, **“Dynamics of generalist predator in a stochastic environment: Effect of delayed growth and prey refuge”** Published in **Applied Mathematics and Computation**, 268 (2015) 1072-1094 (SCI index, Impact Factor **4.397**).

- Ranjit Kumar Upadhyay, **Rashmi Agrawal**, “**Modeling the effect of mutual interference in a delay-induced predator-prey system**” Published in **Journal of Applied Mathematics and Computing**, 49 (2015) 13-39 (SCI index, Impact Factor **2.196**).
- Debaldev Jana, **Rashmi Agrawal**, Ranjit Kumar Upadhyay, “**Top-predator interference and gestation delay as determinants of the dynamics of a realistic model food chain**” Published in **Journal Chaos Solitons and Fractals**, 69 (2014) 50-63 (SCI index, Impact Factor **9.922**).
- D. Jana, N. Bairagi, **R. Agrawal**, R.K. Upadhyay, “**Modeling the Effect of Gestation Delay of Predator on the Stability of Bifurcating Periodic Solutions in Wetland Ecosystem**” Published in **The Journal of Ecology**, Photon 107 (2013) 175-189 (Impact Factor **5.12**).

Conference/Seminar/Faculty Development Programme/Workshop

- Participated in the conference “**Recent Advances in Mathematics and its Application RAMA-2013**” being organized during February 14-16, 2013 at ISM, Dhanbad.
- Participated in the advanced level workshop “**Nonlinear Differential Equations: Dynamics of Complex Systems**” during Sept. 23-28, 2013 at University of Calcutta.
- Poster presented paper entitled “**Top-predator interference and gestation delay as determinants of the dynamics of a realistic model food chain**” in the International Conference on Environmental Biology and Ecological Modeling (ICEBEM-2014) during Feb. 24-26, 2014 at Visva-Bharti, Santiniketan.
- Presented paper entitled “**Modeling the effect of mutual interference in a delay-induced predator-prey system**” in the International Conference on Advances in Dynamical Systems (ICADS-2014) during March 10-13, 2014 at Central University of Rajasthan, Kishangarh, Rajasthan.
- Participated in the conference “**Indian Mathematical Society IMS-2014**” being organized during Dec 27-30, 2014 at ISM, Dhanbad.
- Presented paper entitled “**Global dynamic behavior of a predator-prey system with competitive interference and time delay**” in the conference National Seminar on Advances in Applied Mathematics & Mechanics (NSAAMM-2015) during March 12-13, 2015 at SGC Nadaun, Hamirpur, H. P.
- Presented paper entitled “**The gestation delay a factor causing complex dynamics in Gause type competition models**” in the International Conference on Mathematical Modeling & Simulation (ICMMS-2016) during August 29-31, 2016 at Institute of Science, BHU, Varanasi.
- Organized a Five days online **Faculty Development Programme on Research Methodology** sponsored by ATAL academy, Dec 07-11, 2020.
- Participated in an International Conference on “**Resurgent Bharat on the Global Canvas**” during February 25-26, 2024 organized by Shaikshik Foundation in collaboration with Shivaji College, university of Delhi.
- Participated in an **Online Faculty Induction/Orientation Programme** during February 21-March 19, 2024 organized by TLC Ramanujan College, University of Delhi, under the Ministry of Education sponsored Pandit Madan Mohan Malaviya National Mission on Teachers & Teaching scheme.

- Participated in a **Refresher Course in Mathematics** during March 31-April 13, 2024 organized by TLC Ramanujan College, University of Delhi, under the Ministry of Education sponsored Pandit Madan Mohan Malaviya National Mission on Teachers & Teaching scheme.

Research Guidance (*Supervision of Doctoral Thesis/Dissertations*)

Awards and Distinctions

- **GATE** qualified with **91 percentile** in 2012.
- Secured **2nd position in B.Sc.** from S.S.L.N.T.M.M., Dhanbad.
- Awarded Merit Certificate for obtaining **100 marks in Mathematics** in Matric.

Memberships

- Student member of AMS (2016)
- Student member of SIAM (2016)
- Student member of BMSI in Jadavpur University, Kolkata (2016)
- Life member of Indian Science Congress (2016)
- Life member of Indian Mathematical Society (2014)
- Life member of Society of Applied Mathematics in ISM Dhanbad (2014)

Other Academic Activities/Qualifications

- Professional Certificate Programme done in **Applied Data Science** from **IIT Palakkad**
- Computer Languages: Python, C++, C
- Computer Packages: Matlab, Mathematica
- Knowledge of Data Science, Data Structures, Data Base Management System, Computer Organization, Digital circuit, Networking, Algorithm, Algorithm Design and Analysis.
- **“Analysis of Artificial Neural Networks and Algorithm based programming”** summer project work done under the guidance of Dr. V. K. Kalyani, Scientist, CIMFR, Dhanbad (2 months)
- **“Fundamental Problems of Cooperating Processes”**, Dissertation submitted as a part of 4th semester M. Sc. under the guidance of Dr. M. K. Singh, Associate Prof., Dept. of Applied Mathematics, ISM, Dhanbad

Cultural/Extracurricular Activities



Signature of Faculty Member