

Jai Prakash Tripathi

CONTACT INFORMATION

Assistant Professor,
Department of Mathematics,
Central University of Rajasthan,
Kishangarh-305817, Rajasthan, India

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RESEARCH FOCUS:

With broad research interest in mathematical ecology, I use variety of modeling approaches and mathematical analysis techniques to address some basic questions in epidemiology and mathematical ecology. In particular, I explore interactions at the population and ecosystem level. I develop variety of ecological and epidemiological models using ordinary, partial functional and integro-differential equations. For examining and understanding the non-linear features (e.g., stability, resilience, robustness, transient dynamics, bifurcations, periodicity, almost periodicity, oscillations etc.) of ecosystems, I use the following mathematical techniques: Dynamical system theory, Linearization of differential equations, Lyapunov function, Fluctuation Lemma, stability theory, Bifurcation theory, normal form theory, center manifold theory, perturbation theory. For numerical simulations, I preferably use MATLAB, MATHEMATICA and MAPPLE.

EDUCATION

- **Ph.D.** Biomathematics, Indian Institute of Technology Mandi (**IIT Mandi**), H.P. India
 - Thesis Topic: *Dynamical analysis of some predator-prey models with help and refuge*
 - Advisors: Dr. Syed Abbas and Dr. Manoj Thakur
 - Ph.D. Course Work with **C.G.P.A. 9**.
- **M.Sc.** Mathematics, Dr. R.M.L. Avadh University Faizabad, U.P., 2006 with 71.66%.
- **B.Sc.** Mathematics, Dr. R.M.L. Avadh University Faizabad, U.P., 2004 with 71.33%.
- **Intermediate**, A.J.I.C. Tanda Ambedkar Nagar, U.P., 2001 with 67.80%.
- **High School**, A.J.I.C. Tanda Ambedkar Nagar, U.P., 1999 with 65.50%.

TEACHING EXPERIENCE

- February, 2015 - Present. Assistant Professor, School of Mathematics, Statistics and Computational Sciences, Department of Mathematics, **Central University of Rajasthan**, Kishangarh, India.
- Currently I am teaching following courses:
(i) Linear Algebra (ii) Mathematical Modeling (iii) Differential Equations

- Courses taught in the last semesters:
 - (i) Linear Algebra (ii) Abstract Algebra (iii) Vector calculus and matrices
 - (iv) Real Analysis (v) Dynamical systems (vi) Numerical Analysis (vii) Differential Equations (viii) Mathematical Biology (ix) Qualitative theory of Differential Equations
- October, 2010- January, 2015. Teaching Assistant (TA), IIT Mandi for several courses in Mathematics.
- July, 2007 - August, 2010. Lecturer, Department of Mathematics, G.S.P.G. College Sultanpur, U.P., India.

RESEARCH
INTERESTS

- Differential Equations
- Mathematical Ecology,
- Almost periodicity and periodicity in ecology
- Spatio-temporal modelling,
- Epidemiology.

REFEREED
JOURNAL
PUBLICATIONS

1. Bugalia S., **Tripathi J.P.**, Abbas S., Wang H., General theory for significance of culling in two-way disease transmission between humans and animals, *Journal of Biological Systems*, Accepted **2023**, (**Impact Factor: 1.909**).
2. Bugalia S., **Tripathi J.P.**, Wang H., Estimating the time-dependent effective reproduction number and vaccination rate for COVID-19 in the USA and India, *Mathematical Biosciences and Engineering*, 20(3) 4673-4689 **2022** (**Impact Factor: 2.194**).
3. Bajiya V.P., Bugalia S., **Tripathi J.P.**, Martcheva M., Deciphering the transmission dynamics of COVID-19 in India: optimal control and cost effective analysis, *Journal of Biological Dynamics*, 16(1) 765-712, **2022** (**Impact Factor: 2.726**).
4. Bajiya V.P., **Tripathi J.P.**, Kakkar V., Kang Y., Modeling the impacts of awareness and limited medical resources on the epidemic size of a multi-group SIR epidemic model, *International Journal of Biomathematics*, 15(7) 2250045, **2022** (**Impact Factor: 2.129**).
5. **Tripathi J.P.**, Bugalia S., Jana, D., Gupta S., Tiwari, V., Li J., Sun G-Q., Modeling the cost of anti-predator strategy in a predator-prey system: The roles of indirect effect, *Mathematical Methods in Applied Sciences*, 45(8) 4365-4396, **2022** (**Impact Factor: 3.007**).
6. Akman, O., Chauhan, S., Ghosh, A., Liesman, S., Michael, E., Mubayi, A., Perlin, R., Seshaiyer, P., **Tripathi J.P.**, The Hard Lessons and Shifting Modeling Trends of COVID-19 Dynamics: Multiresolution Modeling Approach, *Bulletin of Mathematical Biology*, 1-30, **2022** (**Impact Factor: 3.871**).

7. Kumar U., Mandal P.S., **Tripathi J.P.**, Bajiya V.P., Bugalia S., SIRS epidemiological model with ratio-dependent incidence: Influence of preventive vaccination and treatment control strategies on disease dynamics, *Mathematical Methods in Applied Sciences*, 44(18) 14703-14732, **2021 (Impact Factor: 3.007)**.
8. Bajiya, V.P., **Tripathi J.P.**, Kakkar, V., Wang, J. and Sun, G.Q., Global Dynamics of a Multi-group SEIR Epidemic Model with Infection Age, *Chinese Annals of Mathematics, Series B*, 833-860, **2021 (Impact Factor: 0.531)**.
9. **Tripathi J.P.**, Bugalia, S., Burdak, K., Abbas, S. Dynamical analysis and effects of law enforcement in a social interaction model, *Physica A: Statistical Mechanics and its Applications*, 125725, **2021 (Impact Factor: 3.778)**.
10. Tiwari V., **Tripathi J.P.**, Jana, D., Vyshnavi Devi, NSNVK, Tiwari, V., Abbas S., Intraspecific competition of predator for prey with variable rates in protected areas, *Nonlinear Dynamics*, 102(1), 511-535, **2019 (Impact Factor: 5.741)**.
11. **Tripathi J.P.**, Bugalia, S., Tiwari, V., Kang, Y., A predator–prey model with Crowley–Martin functional response: A nonautonomous study, *Natural Resource Modeling*, 33(4), e12287, **2020 (Impact Factor: 1.394)**.
12. Bajiya, V.P., Bugalia, S., **Tripathi J.P.**, Mathematical modeling of COVID-19: Impact of non-pharmaceutical interventions in India, *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 30, 113143, **2020 (Impact Factor: 3.741)**.
13. Bugalia, S., Bajiya, V.P., **Tripathi J.P.**, Li, M-T., Sun G.-Q., Mathematical modeling of COVID-19 transmission: the roles of intervention strategies and lockdown, *Mathematical Biosciences and Engineering*, 17, 5961-5986, **2020 (Impact Factor: 2.194)**.
14. **Tripathi J.P.**, Mandal, P.S., Poonia, A., Bajiya V.P., A widespread interaction between generalist and specialist enemies: The role of intraguild predation and Allee effect, *Applied Mathematical Modeling*, 89, 105-135, **2020 (Impact Factor: 5.336)**.
15. Tiwari V., **Tripathi J.P.**, Upadhyay, R.K., Wu Y-P., Wang J-S., Sun G.-Q., Predator–prey interaction system with mutually interfering predator: role of feedback control, *Applied Mathematical Modeling*, 87, 222-244, **2020 (Impact Factor: 5.336)**.
16. Srivastva H.M., Day U., Ghosh A., **Tripathi J.P.**, Abbas S., Taraphder A., Roy M., Growth of tumor due to Arsenic and its mitigation by black tea in Swiss albino mice, *Alexandria Engineering Journal*, 59(3), 1345-1357, **2020 (Impact Factor: 6.626)**.

17. Tiwari V., **Tripathi J.P.**, Mishra S., Upadhyay R.K., Modeling the fear effect and stability of non-equilibrium patterns in mutually interfering predator-prey systems, *Applied Mathematics and Computation*, 371(15), 124948, **2020 (Impact Factor: 4.397)**.
18. Tiwari V., **Tripathi J.P.**, Jana D., Tiwari S., Upadhyay R.K., Exploring complex dynamics of spatial predator-prey system: role of predator's interference and additional food, *International Journal of Bifurcation and Chaos*, 30(7), 2050102, **2020 (Impact Factor: 2.450)**.
19. Zhang Z., Kundu S., **Tripathi J.P.**, Bugalia S. Stability and Hopf bifurcation analysis of an SVEIR epidemic model with vaccination and multiple time delays, *Chaos, Solitons and Fractals*, 98(2), 109483, **2020 (Impact Factor: 9.992)**.
20. Tiwari V., **Tripathi J.P.**, Abbas S., Wang, J-S., Sun G.-Q., Zhen, J., Qualitative analysis of a diffusive Crowley–Martin predator–prey model: the role of nonlinear predator harvesting, *Nonlinear Dynamics*, 98(2), 1169-1189, **2019 (Impact Factor: 5.741)**.
21. **Tripathi J.P.**, Abbas S., Sun, G.-Q., Jana, D., Wang C-H., Interaction between prey and mutually interfering predator in prey reserve habitat: Pattern formation and the Turing–Hopf bifurcation, *Journal of the Franklin Institute*, 355(15), 7466-7489, **2018 (Impact Factor: 4.246)**.
22. **Tripathi J.P.**, Tyagi S., Abbas S., Dynamical analysis of a predator-prey interaction model with time delay and prey refuge, *Nonautonomous Dynamical Systems*, 5(1), 138-151, **2018**.
23. **Tripathi J.P.**, Meghwani, S.S., Tyagi, S., Abbas S., Thakur M., Global dynamics and parameter identifiability in a predator-prey interaction model, *Nonautonomous Dynamical Systems*, 5(1) 113-126, **2018**.
24. **Tripathi J.P.**, Jana D., Tiwari V., A Beddington–DeAngelis type one-predator two-prey competitive system with help, *Nonlinear Dynamics*, 94(1), 553-573, **2018 (Impact Factor: 5.741)**.
25. **Tripathi J.P.**, Meghwani S.S., Thakur M., Abbas S., A modified Leslie-Gower predator-prey interaction model and parameter identifiability, *Communications in Nonlinear Science and Simulation*, 54 (1), 331-346, **2017 (Impact Factor: 4.186)**.
26. Parshad R.D., Basher A., Jana D., **Tripathi J.P.**, Do prey handling predators really matters: Subtle effects of Crowley-Martin functional response, *Chaos Solitons and Fractals*, 103, 410-421, **2017 (Impact Factor: 9.992)**.
27. **Tripathi J.P.**, Abbas S., Thakur M., Dynamical analysis of a density dependent two prey one predator model with help, *Dynamics of Continuous, Discrete and Impulsive, Systems (DCDIS) Series B: Applications and Algorithms, Waterloo University*, 24(1), 49-81, **2017**.

28. Abbas S., **Tripathi J.P.**, Neha A.A., Dynamical analysis of a model of social behavior: Criminal vs Suppressed population, *Chaos, Solitons and Fractals, Elsevier*, 98, 121-129, **2017 (Impact Factor: 9.992)**.
29. **Tripathi J.P.**, Tyagi S., Abbas S., Global analysis of a delayed density dependent predator-prey model with Crowley-Martin functional response, *Communications in Nonlinear Science and Simulation*, 30 45-69, **2016 (Impact Factor: 4.186)**.
30. **Tripathi J.P.**, Abbas S., ., Global dynamics of autonomous and nonautonomous SI epidemic models with nonlinear incidence rate and feedback controls, *Nonlinear Dynamics*, 86 (1), 337-351, **2016 (Impact Factor: 5.741)**.
31. **Tripathi J.P.**, Almost periodic solution and global attractivity for a density dependent predator-prey system with mutual interference and Crowley-Martin response function, *Differential Equations and, Dynamical Systems*, DOI: 10.1007/s12591-016-0298-6), **2016**.
32. Jana D., **Tripathi J.P.**, Impact of generalist type sexually reproductive top predator interference on the dynamics of a food chain model, *International Journal of Dynamics and Control*, DOI: 10.1007/s40435-016-0255-9, **2016**.
33. **Tripathi JP.**, Abbas S., Thakur M., Dynamical Analysis of a Prey-Predator Model with Beddington-DeAngelis type Function Response incorporating a Prey Refuge, *Nonlinear Dynamics*, 80 (1-2), 177-196, **2015 (Impact Factor: 5.741)**.
34. **Tripathi J.P.**, Abbas S., Thakur M., A density dependent delayed predator-prey model with Beddington-DeAngelis type Function Response incorporating a prey refuge, *Communications in Nonlinear Science and Simulation, Elsevier*, 22 (1-3), 427-450, **2015 (Impact Factor: 4.186)**.
35. **Tripathi J.P.**, Abbas S., Thakur M., Local and global stability analysis of two-prey one-predator model with help, *Communications in Nonlinear Science and Simulation*, 19 (9), 3284-3297, **2014 (Impact Factor: 4.186)**.
36. **Tripathi J.P.**, Abbas S., Thakur M., Analysis of Beddington DeAngelis type predator-prey model, *Mathematical Sciences International Research Journal*, 3 (1), 152-157, **2014**.

CONFERENCE
PROCEEDINGS/
BOOK CHAPTERS

1. **Tripathi JP.**, Tivari V., A delayed non-autonomous predator-prey model with Crowley-Martin functional response, *ICMC-2018, Springer, Mathematics and Computing*, 834, 164-173, **2018**.
2. **Tripathi JP.**, Abbas S., Thakur M., Stability Analysis of a two-prey one-predator model, *ICNAAM-2012, 19-25 September 2012, Kos, Greece, American Institute of Physics Conf. Proc.*, 1479, 904-909, **2012**.

3. **Tripathi J.P.**, Abbas S., **Book Chapter:** Almost periodicity of a modified Leslie-Gower predator-prey system with Crowley-Martin functional response, , *Book Title: Mathematical Analysis and Its Applications, Publisher: Springer, Volume 14, 309-317, 2015 (ISBN: 978-81-322-2485-3).*
4. **Tripathi J.P.**, Tiwari, V., Abbas S., A non-autonomous ecological model with some applications, *ICACIE-2017, 23-25 November 2017, Central University of Rajasthan, Accepted, Publisher: Springer, 2017*

PROJECTS

- **Title:** Spatiotemporal modelling of Schistosomiasis transmission and control under various demographic and seasonal environment.
Agency: University Grant Commission
Amount: Rs. 1,000,000 (**10 Lakhs**)
Duration: 2 years (2017-2019)
Current Status: Completed
- **Title:** Mathematical modeling of the biological control problems: Non-chemical methods in population and disease control.
Agency: Science and Engineering Research Board (SERB) (ECRA), India
Amount: Rs. 1,801,222 (**18 Lakhs** Twelve Thousands Twenty Two)
Duration: 3 years (2018-2021)
Current Status: Completed
- **Title:** Mutations makes the pandemic worse or better: a mathematical modeling study.
Agency: Science and Engineering Research Board (SERB), (MATRICS) India
Amount: Rs. 6,000,00 (**6 Lakhs**)
Duration: 3 years (2023-2026)
Current Status: Running

ACHIEVEMENTS

/AWARDS

/FELLOWSHIPS

- Certificate and **silver medal** for the 2nd rank in B.Sc. in 2004
- **2nd Rank** in M.Sc. in 2006.
- Qualified **CSIR-JRF**-June, 2010 (Rank: 97).
- Qualified **GATE**-2010 (Rank: 162).
- Awarded **CSIR senior research** fellowship for the year 2013-2015.
- **Financial support, IIT Mandi** to attend and present a research paper in ICNAAM 2012, 19-25 September, 2012 held at Kipriotis Hotels, **Kos, Greece.**
- **Best paper presentation award** for the paper "Global stability of a predator-prey system with Crowley-Martin functional response" in Anushndhan-2014 held at **IIT Mandi.**
- Selected for **Young faculty award, VIFFA-2015.**
- **Financial support, DST-SERB, Govt. of India, New Delhi** under ITS scheme to attend and present a research paper in MADEA-7, 8-13 September, 2015 held at AF Hotel and Aqau Park, **Baku, Azerbaijan.**
- **Financial support, Society of Mathematical Biology (SMB)** to participate

and **Chair a session** in AMNS-2016, 26-29 May, 2016 held at **Kathmandu, Nepal**.

- **Financial support, SMB** to participate and present a research paper in ICAAMM 2017, 3-7 July, 2017 held at Gelisim University, **Istanbul, Turkey**.
- **Financial support, DST-SERB, Govt. of India, New Delhi** under ITS scheme to attend and present a research paper in DS-19, 19-23 May, 2019 held at **Snowbird, Salt lake City, USA**.
- **Financial support, DST-SERB, Govt. of India, New Delhi** under ITS scheme to attend and present a research paper in DSABNS-2020, 4-7 February, 2020 held at **University of Trento, Italy**.

CONFERENCES
/WORKSHOPS
/INVITED TALKS

- **International:**
 - **Presented** a paper titled "Stability Analysis of a two-prey one predator model" in the International Conference of Numerical Analysis and Applied Mathematics (ICNAAM-2012), **Kos, Greece**, September 19-25, 2012.
 - Participated in DAAD supported International workshop on Advances in PDE modeling and computations, **IIT Madras**, October 21-25, 2013.
 - Participated in **Indo-Canadian workshop** on Mathematical Modelling of Infectious Diseases (**ICWMMID**), **IIT Roorkee**, January 20-22, 2014.
 - Participated in **TIFR-PIMS, Canada program** on the Advances in Mathematical Biology, **IISER Pune**, December 7-16, 2014.
 - **Presented** a paper titled "Almost periodicity of a modified Leslie-Gower predator-prey system with Crowley-Martin functional response" in the International Conference on recent trends in Mathematical Analysis and Applications (**ICRTMAA-2014**), **IIT Roorkee**, December 21-23, 2014.
 - **Presented** a paper titled "Dynamical analysis of a prey-predator model with Beddington-DeAngelis type prey-predator functional response incorporating a prey refuge" in **ICOCBASD-2015, Central University of Rajasthan**, February 20-22, 2015.
 - **Presented** a paper titled "Almost periodic solution for a delayed non-autonomous predator-prey model" in **MADEA-7,, Baku, Azerbaijan**, September 8-13, 2015.
 - **Presented** a paper titled "Almost periodic solution for a density dependent predator-prey system with mutual interference and Crowley-Martin response function" in **CONIAPS XVIII, University of Allahabad**, December 22-24, 2015
 - **Chaired a session and presented** a paper titled "A non-autonomous predator-prey model incorporating a prey refuge" in International Conference on Applications of Mathematics to Nonlinear Sciences (**AMNS-2016**), **Kathmandu, Nepal**, May 26-29, 2016.

- **Presented** a paper titled “Almost periodicity in an ecological system” in the International Conference on Mathematical Modeling and Simulation, Department of Mathematics **BHU, India**, August 29-31, 2016.
 - **Presented** a paper titled “Almost periodic solution for a density dependent predator-prey system with mutual interference and Crowley-Martin response function” in the **ICAAMM 2017**, Gelisim University **Istanbul, Turkey**, July 3-7, 2017.
 - **Presented** a paper titled “A non-autonomous ecological model with some applications” in the **ICACIE 2017**, Central University of Rajasthan **Ajmer, India**, November 23-25, 2017.
 - **Presented** a paper titled “A delayed non-autonomous predator-prey model with Crowley-Martin functional response” in the **ICMC 2018**, IIT (BHU) **Varanasi, India**, January 9-11, 2018.
 - **Presented** a paper titled “A Social Interaction Model with Holling type II Functional Response” in the **ICRTD-TACDE 2018**, South Asian University (SAU) **New Delhi, India**, January 21-23, 2019.
 - **Presented** a paper titled “A Social interaction model with Holling type II functional response” in the **DSABNS 2020**, University of Trento **Trento, Italy**, February 4-7, 2020.
 - **Invited Talk** in Indo-US Conference II on the “The Science of Mathematical Modeling and Decision Making: A Changing Trajectory into the Future, From Past to Post COVID-19 Pandemic ”, SSSIHL India and Illions State University, USA, October 28-30, 2021.
- **National:**
 - Participated in Workshop on Stability & Bifurcation Analysis & Pattern Formation in Mathematical Ecology & Epidemiology, **IIT Kanpur**, February 25 - March 2, 2011.
 - Participated in Workshop and Conference on National Conference on Evolution Equations: Theory, Methods & Applications (NCEETMA), **IIT Kanpur**, December 2-8, 2012.
 - Participated in the Research Fair 2013, **IIT Mandi**, 26th June, 2013
 - **Presented** a paper titled “A delayed predator prey system with Crowley-Martin functional response” in the **Research Fair Anusandhan’14**, **IIT Mandi**, 19th June, 2014.
 - Participated in a three day Lecture Programme on “ Mathematical Modelling and Data Analysis in Biology”, **IIT Mandi**, October 27-29, 2014.
 - **Presented** a paper titled “Almost periodicity of a delayed modified predator-prey system with Crowley-Martin functional response” in the 80th Annual conference of Indian Mathematical Society (**IMS-2014**) **ISM Dhanbaad**, December 27-30, 2014.
 - Participated in ISL (**ATM school**) for Lecturers on “Analysis and Differential Equations”, **TIFR, CAM Bangalore**, December 7-16, 2015.

- **Chaired a session** in NWMMS, Central University of Rajasthan, India, March 14-18, 2016.
- **Invited Talk** on “ Mathematical Modeling and Differential Equations” in one week Faculty Development Programme on “Innovative Trends in Computing Technology and Engineering”, MITS Gwalior, India, March 25, 2017.
- **Invited Talk** on “ Solution of Systems of Differential Equations and Fundamental Matrix” in the Workshop on “Differential Equations, Bifurcation and Chaos with Numerical Simulations in MATLAB”, BHU, Varanasi, India, October 27-28, 2018.
- **Guest Lecture** on “ Some Applications of Differential Equations” in the Expert Lecture Series on “ Applications of Linear Algebra and Differential Equations”, Vivekananda Global University Jaipur, India, February 15, 2019.
- **Keynote Lecture** on “ Latex and MATLAB: Some Applications” in the Short Term Course on “Latex and MATLAB Indispensable Tools for Research”, Department of Applied Sciences & Humanities and M.B.A, Bundelkhand Institute of Engineering and Technology (BIET), Jhansi, India, July 8-12, 2019.
- **Invited Talk** on “ Applications of Differential Equations” in one day Workshop on “Applications of Differential Equations in Science and Engineering”, Rajkiya Engineering College (REC) Ambedker Nagar, UP, India, August 13, 2019.
- **Invited Talk** on “MATLAB and its Applications” in one week Faculty Development Program (FDP) on “Applications of LaTeX and MATLAB in Engineering”, Rajkiya Engineering College (REC) Banda, UP, India, September 16-20, 2019.
- **Invited Talk** in “National Conference on Recent Advancement in Physical Sciences”, NIT Utrakhand, Utrakhand, India, December 19-20, 2019.
- **Invited Talk** in “Recent Trends in Mathematical Modeling and Its Applications (NCRTMMA-2021)”, ICAI University, Tripura, India, August 23-27, 2020.
- **Invited Talk** in “Faculty Development Program on “Mathematical Perspective of Epidemic Outbreak with Special Focus on COVID-19”, IIIT Bhagalpur, India, March 18-22, 2021.
- **Invited Talk** in one week online Faculty Development Program (FDP) on “ Mathematics and Its applications in Science & Engineering ”, Shri Vaishno Mata University, Jammu, India, September 27- October 01, 2021.
- **Invited Talk** in 1st International Workshop on Recent Trends in Modeling and Its Applications-2022 on “ Mathematics and Its applications in Science & Engineering ” (IWRTMIA-2022), Post-Graduate College Ghazipur UP, India, September 4-8, 2022.
- **Invited Talk** in 2nd National Conference on Computational and Characterization in Engineering and Sciences (CCTES-2023), Rajkiya Engineering College Ambedkar Nagar UP, India, February 27-28, 2023.

- VISIT ABROAD
- Participated in ICNAAM-12, held at **Kos, Greece**, September 19-25, 2012.
 - Participated in MADEA-7, held at **Baku, Azerbaijan**, September 8-13, 2015.
 - Participated and Chaired a session in AMNS-2016, held at **Kathmandu, Nepal**, May 25-29, 2016.
 - Participated in ICAAMM 2017, held at **Istanbul, Turkey** July 3-7, 2017.
 - Participated in ICAAMM 2017, held at **Trento, Italy** February 4-7, 2020.
- MEMBERSHIPS IN SCIENTIFIC ORGANIZATIONS
- Annual member of Society for Industrial and Applied Mathematics (SIAM), USA
 - Life member of Indian Mathematical Society (IMS), India
 - Annual member of Society of Mathematical Biology (SMB), Canada
 - Life member of Indian Science Congress Association (ISCA), India
 - Life member of Indian Mathematical Society (IMS), India
- REVIEWER /REFEREE
- Mathematics Reviews (American Mathematical Society)
 - Scientific Reports
 - Journal of Mathematical Biology
 - Journal of Mathematical Analysis and Applications
 - Mathematical Biosciences
 - Applied Mathematical Modelling
 - Journal of Theoretical Biology
 - Ecological Modelling
 - Applied Mathematics and Computation
 - International Journal of Dynamics and Control.
 - International Journal of Bio-mathematics.
 - Kybernetes.
- ADDITIONAL QUALIFICATION
- B.Ed. Science, Dr. R.M.L. Avadh University Faizabad, U.P., 2007 with 70.50%.
 - Computer Awareness Course, Vaibhav Consultancy Center, Faizabad, U.P., 2008.
- OTHER EXPERIENCES
- **Mega Mess Committee, Coordinator**, Central University of Rajasthan.
 - **Assistant Warden**, Hall B6, Central University of Rajasthan.
 - **Organized Research Fair: 2016**, at Central University of Rajasthan.
 - **Assistant Warden** from October 2015- Present, Boy's Hostel 7, Central University of Rajasthan.

- **Hostel Secretary** in 2011-2012 of Beas Kund Hall, IIT Mandi, Mnadi, H.P.
- **Counsellor** for slow learners in the department of Mathematics, Central University of Rajasthan.
- NSS program in 2001-2002.
- Departmental coordinator for placement cell
- Departmental coordinator for Integrated M.Sc. Programme

COMPUTATIONAL SKILLS • **General Computational Skills:** MS-office, Ubuntu, Excel.
 • **Mathematical Software tools:** MATLAB, MAPPLE, MATHEMATICA

REFERENCES: Prof. Anuj Mubayi
Professor, Contact No: +1 (480) 2095329
Illinois State University E-mail: anujmubayi@yahoo.com
 USA

Dr. Syed Abbas
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BHU, Varanasi, U.P. India

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PHD THESIS
SUPERVISION: **Completed:**
(1) Vijay Pal Bajiya (Jointly)
Ongoing:
(1) Sarita Bugalia
(2) Nitesh Kumawat (Jointly)
(3) Komal Kumari
(4) Dheeraj Jagind

STUDENT: **Completed:** Deepak Tripathi (JRF under SERB, ECRA Sponsered Research
JUNIOR Project)
RESEARCH
FELLOW

POST GRADUATE
THESIS
SUPERVISION:

Sl. No.	Name of students	Title of thesis	Master/Doctorate	Year of Completion
1.	Rayeesh Ahmad Mir	Almost periodicity of a modified Leslie Gower prey-predator system with CMFR incorporating prey refuge	M.Sc. Tech. (Mathematics) (Minor project)	2015
2.	Meenakshi Verma	Stability analysis of a two prey one predator system with help	M.Sc. Tech. (Maths) (Minor project)	2015
3.	Shweta Gupta	A non-autonomous density dependent predator-prey system with BDFR	M.Sc. Tech. (Maths) (Minor project)	2016
4.	Deepika Sharma	Almost periodic functions and its applications	M.Sc. Tech (Maths) (Minor project)	2016
5.	Tarun Dattatrey	Analysis of an epidemiological model (SIR Model)	M.Sc. Tech. (Maths) (Minor project)	2016
6.	Bindu Chaudhary	Some properties of almost periodic functions	M.Sc. Tech. (Maths) (Minor project)	2016
7.	Devraj Meena	Analysis of a social interaction model	M.Sc. Tech. (Maths) (Minor project)	2016
8.	Kavita Burdak	A social inetraction model with Holling Type II Functional Response	Int. M.Sc. B.Ed. (Maths) (Major project)	2018
9.	Preeti Meena	A mathematical model for Schistosomiasis with Nonlinear Incidence Rate	Int. M.Sc. B.Ed. (Maths) (Major project)	2018
10.	Nisha Gupta	Modelling of fear effect in predator-prey interactions with Delay and BDFR	Int. M.Sc. B.Ed. (Maths) (Major project)	2018
11.	Nistha Singh	Fear and Refugia in prey species stabilize chaos in a tri-trophic food model with disease in intermediate predator	Int. M.Sc. (Maths) (Major project)	2019
12.	Heena Chaudhary	Role of harvesting and Allee in a predator-prey model with disease in the both populations	Int. M.Sc. (Maths) (Major project)	2019
13.	Ashsish Poonia	Intraguild Predation Model with Generalist Predator and Allee Effect	Int. M.Sc. (Maths) (Major project)	2019
14.	Ankit Garg	A Predator-Prey Model with Non-linear Harvesting	M.Sc. Tech. (Maths) (Major project)	2019
15.	Monika	Disease dynamics of honeybees with varroa destructor as parasite and virus vector	Int. M.Sc. B.Ed. (Maths) (Major project)	2020
16.	Deepak Kumar Sah	SEIQR multi-group epidemic model with human interventions and awareness	Int. M.Sc. B.Ed. (Maths) (Major project)	2020
17.	Gajanand	A Predator-Prey Model with Non-linear Harvesting	Int. M.Sc. B.Ed. (Maths) (Major project)	2020
18.	Shruti Verma	Role of Allee effect and harvesting in a diseased amensalism model with different functional responses	Int. M.Sc. (Maths) (Major project)	2020
19.	Anamika Kumari 2017IMSBMT008	Effectiveness and implications of mathematical modeling in the teaching learning	Int. M.Sc. B.Ed.(Maths) (Major project)	2020

Sl. No.	Name of students	Title of thesis	Master/Doctorate	Year of Completion
20.	Ravi Prakash Rar 2018IMSBMT003	Study on Applications and Effectiveness of Mathematics in Biology	Int. M.Sc. B.Ed. (Maths) (Major project)	2020
21.	Yogesh Kumar Jiyani 2018IMSBMT002	Application and Importance of Mathematical Modeling	M.Sc. B.Ed. (Maths) (Major project)	2020
22.	Jaswant 2018IMSBMT011	Significance and role of mathematics in epidemiology at senior secondary school	Int. M.Sc. B.Ed. (Maths) (Major project)	2020
23.	Jatin Sharma	The local stability analysis of a multi-strain epidemic model with vaccination	Int. M.Sc. B.Ed. (Maths) (Major project)	2021
24.	Shivam Yadav 2019IMSBMT023	A density dependent PP model: the role of fear effect, group defence and prey refuge	Int. M.Sc. B.Ed (Maths) (Major Project)	2022
25.	Shrichand Bhuria 2019IMSBMT024	Predator-Prey model with fear effect, prey refuge, Allee effect and group defence	Int. M.Sc. B.Ed (Maths) (Major Project)	2022
26.	Yogesh Bali 2019IMSBMT029	A Systematic Review on the impact of human mobility in transmission on dynamics of COVID-19	Int. M.Sc. B.Ed (Maths) (Major Project)	2022