

CURRICULUM VITAE

Dr. Kunwer Singh Mathur

Assistant Professor

Department of Mathematics and Statistics,
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❖ Personal Details:

Father's Name	:	Shri Mitthu Ram Jatav
Date of Birth	:	17 th September, 1985
Sex	:	Male
Marital Status	:	Married
Nationality	:	Indian
Linguistic Capability	:	Hindi and English
Permanent Address	:	Ward No 12 Kamad Road, Indergarh, Dist. Datia Madhya Pradesh – 475675.

❖ Area of interest:

- Mathematical Ecology
- Mathematical Epidemiology
- Mathematical Modelling in Life Sciences
- Differential Equations and Dynamical Systems

❖ Educational Qualification:

PhD, M. Phil, M. Sc, NET-JRF

- **Ph.D.**, From ABV-Indian Institute of Information Technology & Management, Gwalior.
Thesis Title: Modelling of Stage-Structured Populations with Time Delays and Impulsive Changes: Control and Conservation Strategy.
- **NET-JRF**, Mathematical Sciences, June-2009.
- **M Phil (81.75%)**, Mathematics (Mathematical Ecology), Jiwaji University Gwalior (M.P); 2007.
- **M Sc (78.2%)**, Mathematics, Jiwaji University, Gwalior (M.P); **2006 (1st Rank)**
- **B Sc (73.5%)**, Mathematics, Physics, Computer Science; Jiwaji University, Gwalior (M.P); 2004.
- **12th (74.6%)**, Physics, Chemistry, Mathematics; MPBSE, Bhopal; 2001.
- **10th (66%)**, MPBSE, Bhopal; 1999.

❖ **Teaching Experience:** (08 Years)

- Working as a regular Assistant Professor in the Department of Mathematics and Statistics, School of Mathematical and Physical Sciences, Dr. Harisingh Gour Central University, Sagar, M.P. 470003 since 28th May, 2013 to till date.
- Worked as a regular Assistant Professor in Mathematics, Govt. Vijaya Raje Scindhiya College, Bhandar, Dist. Datia (M.P.) under MP Govt. Department of Higher Education since 9th June, 2012 to 27th May, 2013.
- Worked as a regular Lecturer in the Department of Mathematics, Hindustan College of Science and Technology (Sharda Group of Institutions), Farah, Mathura (U.P.) since 22nd September, 2008 to 25th July, 2009.

❖ **Subjects Taught:**

- Mathematical Biology
- Dynamical Systems
- MATLAB, LATEX
- Differential Equations
- Linear and Abstract Algebra
- Real and Complex Analysis
- Calculus & Advanced Calculus
- Engineering Mathematics

❖ **Membership:**

- Member of International *Association for the Engineers and the computer scientists, Hong Kong*
- Life time member of *Indian Academy for Mathematical Modeling and Simulation.*
- Life time member of *Indian Mathematical Society.*
- Life time member of *Ramanujan Mathematical Society.*
- Life time member of *Calculate Mathematical Society.*
- Life time member of *Biomathematical Society of India.*

❖ **Reviewer:**

- (1) Journal of Franklin Institute (Elsevier)
- (2) Advances in Difference Equations (Springer)
- (3) Mathematical Methods in Applied Sciences (Wiley)
- (4) Congent Mathematics (Taylor's and Francis)
- (5) International Journal of Applied and Computational Mathematics (Springer)

❖ **Project Completed/ongoing (P.I.)**

- (1) A Project ₹ 2012542/- entitled "Mathematical Modeling and Analysis of Vector and Water-borne Diseases" under SERB EMR New Delhi is ongoing for the duration of 2018-2021.
- (2) A Project ₹ 1686000/- entitled "Dynamics of mathematical epidemic models for spread of infectious diseases with media awareness, impulsive vaccination, quarantine and isolation: An optimal control study" under SERB EMEQ New Delhi has been completed for the duration of 2017-2020.
- (3) A Project ₹ 600000/- entitled "Study of pest natural enemy mathematical models concerning impulsive control strategy" under UGC New Delhi has been completed for the duration 2014-2016.

❖ Ph.D. Supervision

- (1) Completed (01): Prakash Narayan (Reg. No. Y16472104) on 23/12/2020 on the topic “Mathematical study of sexually transmitted diseases: Control and treatment”.
- (2) ongoing (02)

❖ Paper Publication

- (1) **Kunwer Singh Mathur**, Abhay Srivastava and Joydip Dhar, Dynamics of a stage--structured SI model for food adulteration with media-induced response function, Journal of Engineering Mathematics, 127(1), 1-21, 2021.
- (2) **Kunwer Singh Mathur** and Prakash Narayan, Dynamics of an SVEIRS Epidemic Model with Vaccination and Saturated Incidence Rate, International Journal of Applied and Computational Mathematics (Springer-Scopus Indexed), 4, 1-22, 2018.
- (3) Rajesh K. Gautam, Dipak K. Adak, P. Bharati, **Kunwer Singh Mathur**, Jyoti Jhariya, Pardeep Kumar and Sarabjit Mastana, Human Stature and Development with special reference to Indian population, OIDA International Journal of Sustainable Development, 11(09), 49-68, 2018.
- (4) **Kunwer Singh Mathur** and Joydip Dhar, Stability and permanence of an eco-epidemiological SEIN model with impulsive biological control, Computational and Applied Mathematics (Springer), 37(1), 675-692, 2018.
- (5) **Kunwer Singh Mathur**, An eco-epidemic pest-natural enemy SI model in two patchy habitat with impulsive effect, International Journal of Applied and Computational Mathematics (Springer-Scopus Indexed), 3(3), 2671-2685, 2017.
- (6) **Kunwer Singh Mathur**, A prey-dependent consumption two-prey one predator eco-epidemic model concerning biological and chemical controls at different pulses, Journal of Franklin Institute (Elsevier), 353(15), 3897-3919, 2016.
- (7) **Kunwer Singh Mathur** and Joydip Dhar, Stability Switches and Bifurcation Analysis of a food chain stage-structured model with impulsive pest management strategy, Neural, Parallel and Scientific Computations (Scopus Indexed), 24, 181-208, 2016.
- (8) **Kunwer Singh Jatav** and Joydip Dhar, Global behaviour and Hopf bifurcation analysis of stage-structured prey-predator model with maturation delay for prey and gestation delay for predator, Journal of Biological Systems (World Scientific), 23(1), 57-77, 2015.
- (9) **Kunwer Singh Jatav, Joydip Dhar and Atulya K. Nagar**, Mathematical study of stage-structured pests control through impulsively released natural enemies with discrete and distributed delays, Applied Mathematics and Computations (Elsevier), 238, 511-526, 2014.
- (10) **Kunwer Singh Jatav** and Joydip Dhar, Hybrid approach for pest control with impulsive releasing of natural enemies and chemical pesticides: A plant-pest-natural enemy model, Nonlinear Analysis: Hybrid Systems (Elsevier), 12, 79-92, 2014.
- (11) Joydip Dhar and **Kunwer Singh Mathur**, Mathematical Analysis of a delayed stage-structured predator-prey model with impulsive diffusion between two predator territories, Ecological Complexity (Elsevier), 16, 59-67, 2013.
- (12) **Kunwer Singh Jatav** and Poonam Sinha, Mathematical study of the diffusive population based on resource density undergoing harvesting and diffusion in heterogeneous habitat: Effect of industrialization, Corona Journal of Science and Technology, 2(IV), 1-8, 2013.
- (13) **Kunwer Singh Jatav** and Poonam Sinha, Mathematical study of the effect of industrialization on the resource biomass undergoing harvesting and diffusion in heterogeneous habitat, Applied Mathematics, Elixir, 54A, 12653-12658, 2013.

❖ Invited Talk

- (1) Delivered an invited lecture entitled “Recent Application of Mathematics” on 25th July, 2021 in the One Day International e-Conference on Innovative Research in Science and Technology at Kalikadevi Arts, Commerce and Science College, Shiru Kasar during 25th July, 2021.
- (2) Delivered an invited lecture entitled “Mathematical Modeling with ordinary differential equations” on 12th July, 2021 in the Online workshop on Differential Equations: Theory, Analysis and Applications with MATLAB at DIT University, Dehradun Uttarakhand during 12-16 July, 2021.
- (3) Delivered an invited lecture entitled “MATLAB Toolbox - Optimization” on 22nd January, 2021 in the Short-Term Course on ‘Use of MATLAB in Research’ at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 18-23 January, 2021.
- (4) Delivered an invited lecture entitled “MATLAB Toolbox – Curve Fitting” on 21st January, 2021 in the Short-Term Course on ‘Use of MATLAB in Research’ at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 18-23 January, 2021.
- (5) Delivered two invited lectures entitled “Project Presentation Interface – I & II” on 19th January, 2021 in the Inter/Multi-Disciplinary Refresher Course on ‘Cognitive Economics’ at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 06-19 January, 2021.
- (6) Delivered an invited lecture entitled “MATLAB and Program Design - I” on 18th January, 2021 in the Short-Term Course on ‘Use of MATLAB in Research’ at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 18-23 January, 2021.
- (7) Delivered an invited lecture entitled “MATLAB and Program Design - II” on 18th January, 2021 in the Short-Term Course on ‘Use of MATLAB in Research’ at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 18-23 January, 2021.
- (8) Delivered an invited lecture entitled “Applications of Mathematical Modeling in Real Word Problems” on 23rd December, 2020 in the Celebration of the National Mathematics Day – 2020 at Department of Mathematics, Govt. College Patharia, Dist. Damoh (M.P.).
- (9) Delivered an invited lecture entitled “Basic Concept of Mathematical Modeling” on 4th August, 2020 in the Faculty Induction Programme at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 19 August – 22 September, 2020.
- (10) Delivered an invited lecture entitled “Mathematical Modeling and Development” on 7th February, 2020 in the Interdisciplinary Refresher Course on Mathematical Modeling in Social Sciences at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 3-15 February, 2020.
- (11) Delivered an invited lecture entitled “Micro Teaching” on 11th February, 2020 in the Interdisciplinary Refresher Course on Mathematical Modeling in Social Sciences at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 3-15 February, 2020.
- (12) Delivered an invited lecture entitled “Field Visit” on 12th February, 2020 in the Interdisciplinary Refresher Course on Mathematical Modeling in Social Sciences at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 3-15 February, 2020.
- (13) Delivered an invited talk entitled “Impulsive control of eco-epidemic models with seasonal effects”, in the international conference on Differential Equations and Control problems: Modeling, Analysis and Computations at IIT Mandi during June 17-19, 2019.
- (14) Delivered an invited talk entitled “Application of Impulsive Differential Equations in Biological Systems” in the National Workshop on Theory and Applications of Mathematical and Computational Modeling at ABV-IIITM Gwalior during September 24-25, 2016.

- (15) Delivered an invited talk entitled “Mathematical Modelling in Agricultural Pest Control” in the National Workshop on Theory and Applications of Mathematical and Computational Biology conducted by ABV-IIITM Gwalior during January 22-24, 2015.

❖ **Paper presentation**

1. International Conferences

- (1) Presented a paper entitled “Dynamics of a stage-structured SI model for food adulteration with media induced response function” in International conference on Mathematical Modelling and Computations, held during December 01-03, 2018 at South Asian University, New Delhi.
- (2) Presented a paper entitled “An SVIHRS stage-structured model with isolation and media induced vaccination” in 6th China India Japan Korea Mathematical Biology Colloquium Cum Conference, held during August 23-26, 2017 at IIT Kanpur.
- (3) Presented a paper entitled “The prey dependent consumption two prey one predator eco-epidemic model concerning biological and chemical control at different pulses” in 15th International Symposium on Mathematical and Computational Biology (BIOMAT 2015), held during November 2-6, 2015 at IIT, Roorkee.
- (4) Presented a paper entitled “Stability switches and bifurcation analysis of a food chain stage-structured model with impulsive pest management strategy” in International Conference on Recent Trends in Mathematics, held during July 10-12, 2015 at Allahabad University, Allahabad.
- (5) Presented a paper entitled “Eco-epidemic pest management SEIN model with pest dependent consumption and impulsive control strategy” in International Conference on Mathematical and Computational Biology, held during February 28- March 03, 2015 at IIT, Kanpur.
- (6) Presented a paper entitled “Theoretical Study of Pest Control Using Stage Structured Natural Enemies with Maturation Delay: A crop-pest-natural enemy Model” in International Conference on Recent Advances in Mathematical Sciences and Applications, held during December 9-11, 2011 at Calcutta Mathematical Society, Kolkata.
- (7) Presented a paper entitled “Dynamics of crops-pests-natural enemies food chain model with delay dependent stage structure for natural enemies and impulsive harvesting for pests” in International Conference on Advances in Modeling, Optimization and Computing, held during December 5-7, 2011 at IIT, Roorkee.
- (8) Presented a paper entitled “Stability and bifurcation of a stage-structured food chain model with maturation delay” in Sixteenth Annual Cum Second International Conference of GAMS and 2nd International Conference Bioinformatics Under the Aegis of IFIP-TCS and Computer Society of India, held during September 22-25, 2011 at S.S. Dempo College of Commerce and Economics at Panaji, Goa.

2. National Conferences/Workshops

- (1) Presented a paper entitled “Seasonality effect on two prey one predator stage-structured system at two different pulses” at National conference on Differential equations and Dynamical System, held during April 5-6, 2019 at NIT Puducherry, Karaikal.
- (2) Presented a paper entitled “Interaction of contaminated food and human with the impact of media awareness” in National Conference on Microbial Resources, Bioenergy and Human Environment, held during August 10-11, 2017 at Dr. Harisingh Gour Vishwavidyalaya (A Central University), Sagar (M.P.).

- (3) Presented a paper entitled “Mathematics in biological pest control” in National Conference on Energy for Sustainable Development, held during March 23-24, 2017 at Dr. Harisingh Gour Vishwavidyalaya (A Central University), Sagar (M.P.).
- (4) Presented a paper entitled “Multiplication (Urdhva Triyak Sutra)” in National Workshop on Vedic Mathematics, held during January 6-7, 2017 at Dr. Harisingh Gour Vishwavidyalaya (A Central University), Sagar (M.P.).
- (5) Presented a paper entitled “Stability and Bifurcation Analysis of Two-Stage-Structures Pest Natural Enemy Model with impulsive control Strategy” in National Conference in Current Trends in computational Methods in Science and Engineering, held during April 22-23, 2013 at Govt. Model Science College, Gwalior (M.P.).
- (6) Presented a paper entitled “Mathematical Study of Global warming in India” in National Seminar on Climate Changes – Problems & Solutions of Increasing Temperature”, held during November 5-6, 2011 at Dr. Bhagwat Sahai Government College Gwalior (M.P.).
- (7) Presented a paper entitled “Global Behavior and Hopf Bifurcation of a Stage Structured Prey-Predator Model with Maturation Delay for Prey and Gestation Delay for Predator" in National Conference on Mathematical Modelling and Simulation, held during July 7-9, 2011 at Bhabha Group of Institutions, Kanpur.
- (8) Presented a paper entitled “Global Stability and Bifurcation in a Stage Structured Prey-Predator Model with Maturation and Gestation Delays" in 3rd National Conference on Present Trends in Mathematics and Its Application, held on 23rd April, 2011 at Gwalior Engineering College, Gwalior.
- (9) Presented a paper entitled “Mathematical Study of Deforestation in India” in National Seminar on Environmental Degradation: Concerns and Challenges”, held during March 27-28, 2011 at Govt Post Graduate College, Datia.
- (10) Presented a paper entitled “Analysis of stage structured predator prey model with impulsively diffusive prey between two patches" in National Meet of Research Scholar in Mathematical Sciences-2010, held during October 11-15, 2010 at IIT Madras.
- (11) Presented a paper entitled “Mathematical Study of the Diffusive Population based on Resource Density in Heterogeneous Habitat: Effect of Industrialization" in National Meet of Research Scholars in Mathematical Sciences-2009, held during December 19-23, 2009 at Indian Institute of Technology, Roorkee.
- (12) Presented a paper entitled “Mathematical Study of Diffusive Population based on Resource density undergoing harvesting and diffusion in Heterogeneous Habitat: Effect of Industrialization" in National Seminar on Application of Mathematics in Engineering and Technology, held during Feb 2-3, 2007 at Madhav Institute of Technology & Science, Gwalior.

❖ **Participated in Conference/Workshop/Short Term Program:**

- (1) Participated in **Advanced Workshop on Mathematical Epidemiology & Differential Equations** at IIT Patna (July 8-13, 2013).
- (2) Participated in **DST Sponsored National Programme for Training of Scientists & Technologists Working in Government Sector on Soft Computing Techniques** at ABV-Indian Institute of Information Technology and Management, Gwalior (March 4-9, 2013).
- (3) Participated in **National conference on Theoretical biology and Biomathematics** at Department of Mathematics, Jadavpur University Kolkata (December 15-16, 2010).
- (4) Participated in **Workshop and Symposium on Mathematical Ecology** at IISER, Kolkata (7-14 December, 2010).

- (5) Participated in “**Two days Training Programme on LaTeX: The Language of Scientific Writing (LSW 2010)**” at ABV-IIITM, Gwalior (September 4-5, 2010).
- (6) Participated in “**Conference on Special Functions & their Application – CSFA 2010**” at department of Mathematics and Allied Science, Jiwaji University, Gwalior (June 21-23, 2010).
- (7) Participated in the one-day workshop on “**How to Get Published in Internationally Referred Journals: A Practical Guide**” at ABV-Indian Institute of Information Technology & Management, Gwalior on 21th March, 2010.
- (8) Participated in 5 days **workshop on Mathematical Modelling and Simulation** at ABV-IIITM, Gwalior (December 8 – 13, 2009).
- (9) Participated in 10 days **National Workshop Cum Training Programme on Dynamical System: Analysis and Application** at Banaras Hindu University, Varanasi U.P. (October 22 – 31, 2009).
- (10) Participated in the two days short term program on “**MATLAB & Its Real Time Application in Engineering**” at Anand Engineering College (SGI), Agra U.P (March 9-10, 2007)

❖ **Orientation Programme/Refresher Courses Attended:**

- (1) Participated in the Interdisciplinary Refresher Course on “Environmental Study” held from 16th January, 2017 to 05th February, 2017 at UGC-Human Resource Development Centre, Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.
- (2) Participated in the 54th Orientation Programme held from 18th May, 2015 to 14th June, 2015 at UGC-Human Resource Development Centre, Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.

❖ **Organizing Secretary/Coordinator/Convener**

- (1) Organized one-week Short-Term Course on Use of MATLAB in Research at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 18-23 January, 2021 as a Coordinator.
- (2) Organized a two weeks Interdisciplinary Refresher Course on Data Analysis at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 06-19 August, 2020 as a Coordinator.
- (3) Organized a two weeks Interdisciplinary Refresher Course on Mathematical Modeling in Social Sciences at UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar during 3-15 February, 2020 as a Coordinator.
- (4) Contributed as Joint Organizing Secretary in the National Conference on Energy for Sustainable Development, held during March 23-24, 2017 organized by Dr. Harisingh Gour Vishwavidyalaya (A Central University), Sagar (M.P.).
- (5) Organized a National Workshop on Vedic Mathematics as a Joint Organizing Secretary held from 6-7 January, 2017 at Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.
- (6) Attended the INSPIRE SCIENCE CAMP as Departmental Coordinator held from 28th September to 2nd October, 2016, organized by Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.
- (7) Contributed as Programme Coordinator in the “Science Fair & National Science Day Celebration - 2016” held from 26th February – 4th March, 2016 organized by Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.
- (8) Attended the INSPIRE SCIENCE CAMP as Departmental Coordinator held from 27th to 31st October, 2015, organized by Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.

❖ **Computer Efficiency:**

➤ Application S/W : C Programming, MATLAB, MATHEMATICA, LATEX, MS-Office.

❖ **References:**

1. **Dr. Joydip Dhar**, Associate Professor, Department of Applied Sciences, ABV-IIITM, Gwalior (MP).
2. **Dr. Atulya K Nagar**, Professor, Department of Mathematics and Computer Sciences, Liverpool Hope University, Liverpool (UK).

Date: 7-Oct-21

Place: Sagar

Dr. Kunwer Singh Mathur