

# Curriculum Vitae

## Dr. Gul Zaman

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### 0.1 Objective

I want to work on **Higher Education Management** to strengthen academics, promote research cultures and facilitate researchers to enable them to utilize their skills and expertise for the uplift of the nation. My areas of interest in research are **Mathematical Biology and Fluid Mechanics** such as mathematical model of heart and blood circulation in human body, population dynamics, mathematical epidemiology and infectious diseases with optimal control, and ecological modeling. Moreover, I am highly appreciative of any research activity in other areas of applied Mathematics. I believe that applied Mathematics is tool-builder, therefore I would like to learn and use applied Mathematics which is applicable to a broad diversity of many research fields and useful in daily life.

## 0.2 Personal

Father's Name: Abbas Khan  
Qualification: Ph.D (Applied Mathematics)  
Date of birth: 05-04-1973  
Nationality: Pakistani  
Address: Dir Timargara, Khyber Pakhtunkhwa

## 0.3 Current Position

Vice Chancellor  
University of Malakand, Chakdara Dir  
Khyber Pakhtunkhwa, Pakistan

## 0.4 Academics

- **Ph.D** (Applied Mathematics) (2008)  
Department of Mathematics, Pusan National University, Pusan, South Korea  
Dissertation title "**Blood Flow of Oldroyd-B Type Fluids Induced by Brownian Force in a Vessel**".
- **M.S** ( M.Phil Mathematics)(2006)  
Department of Mathematics, Konkuk University, Seoul, South Korea  
Dissertation title "**Stability Analysis of Spruce Budworm Population and Optimal Control**".
- **M.Sc.** (Mathematics) (1997)  
Department of Mathematics, Gomal University, Dera Ismail Khan, Pakistan.
- **B.Sc.** (Maths A, B and Physics) (1995)  
University of Peshawar, Pakistan.

## 0.5 Theoretical Knowledge

Numerical Analysis 1,2  
Complex Analysis 1,2,3  
Differential Equations  
Algebra 1,2  
Partial Differential Equations  
Bio-Mathematics  
Real Analysis  
Mathematical Method  
Mathematical Modeling  
Dynamics & Optimization  
Numerical Integration  
Control Theory  
Non Linear Analysis  
Computational Mathematics

## 0.6 Computer Skills

MATLAB  
Fortran77  
LATEX  
TEX  
Microsoft Word processing  
Graphics (Power Point)  
Data bases (BIDS and internet sites)  
Well Experience of using E-mail and Internet

## 0.7 Current Research Project

1. Project Title: **Mathematical Models of Dengue Epidemics in Pakistan and Control Strategies**  
Position: **Principal Investigator**

Period of Execution: 3 Year (Resubmitted to HEC after minor correction for approval)

Total Cost: Rs. 2.9 Million (PKR)

2. Project Title: **The transmission dynamics of Hepatitis and its optimal control**

Position: **Principal Investigator**

Period of Execution: 3 Year (2013-2015 in progress)

Total Cost: Rs. 2.3 Million (PKR)

3. Epidemic Models in Fractional Order (in Progress)
4. Smoking Epidemic (in submission process)
5. Modeling of Real World Issues (Working on research proposal)

## 0.8 Subject Taught

1. Applied Dimensional Analysis and Modeling
2. Mathematical Modeling
3. Introduction to Mathematical Biology
4. Computational Mathematics
5. Hydrodynamics & Differential Equations
6. Optimization Theory
7. Differential Equations
8. Numerical Analysis

## 0.9 Research Scholars Supervised

### 0.9.1 Ph.D Supervision

1. Mr. Abid Ali Lashari Ph.D from CAMP-NUST (Degree awarded, 2012) dissertation entitled Mathematical Models of Vector Born Disease and Optimal Control.

2. Roman Ullah Ph.D from AWKUM (Degree awarded, 2013) dissertation entitled Mathematical Modeling and Optimal Control of Some Infectious Diseases.
3. Anwar Zeb Ph.D from UOM (Degree awarded, 2014) dissertation entitled Dynamical behavior and optimal control of smoking model in fractional order.
4. Amir Khan Ph.D from UOM (Degree awarded 2015) dissertation entitled Fractional Order Generalized Fluid Flow Models: An Analytical Approach.
5. Muhammad Zamir Ph.D from UOM (Degree awarded, 2017) Mathematical Analysis of Control Strategies for elimination of Leishmaniasis.
6. Nagir Ali Ph.D from UOM dissertation entitled Mathematical Analysis and Control Strategies of HIV-1 Infection Models (Degree awarded, 2017)
7. Tahir Khan Ph.D from UOM (Research in progress, HEC funded)
8. Asaf Khan Ph.D from UOM (Research in progress)
9. Ibrar Ullah Ph.D from UOM (Research in progress)
10. Ghulam Hussain Ph.D from UOM (Research in progress)
11. Ms. Bibi Fatima Ph.D from UOM (Research in progress)

### **0.9.2 MS/ M.Phil Supervision**

1. Ms. Samreen Sharif M.Phil from CAMP-NUST (Degree awarded, 2010) dissertation entitled Mathematical Models of Infectious Diseases and Role of Optimal Control.
2. Muhammad Altaf Khan M.Phil, Islamia College University Peshawar, dissertation entitled dynamical interaction between leptospirosis infected vector and human population (Degree awarded, 2012)

3. Ibrar Ullah M.Phil from UOM (Degree awarded, 2014)  
dissertation entitled Asymptotic Behavior of Giving Up Smoking Model
4. Muhammad Sajjad Khan M.Phil from UOM (Degree awarded, 2014)  
dissertation entitled Stability Analysis of an Epidemic Model with Different Incidence Rates
5. Zia ud Din M.Phil from UOM (Degree awarded, 2014)  
dissertation entitled Numerical Solution of Oldrod-B Fluid in a Blood Vessel
6. Ghulam Hussain M.Phil from UOM (Degree awarded, 2014)  
dissertation entitled Optimal Control in Epidemic Model with Time Delay
7. Anweruddin M.Phil from UOM (Degree awarded, 2014)  
dissertation entitled Stability Analysis of HIV Epidemic Model
8. Ms. Bibi Fatima M.Phil from UOM (Degree awarded, 2015)  
dissertation entitled The effect of migration on Hepatitis-B model
9. Same Ullah M.Phil from UOM (Degree awarded, 2015)  
dissertation entitled Stability Analysis of SIR and SEIR Epidemic Models
10. Ms. Nila M.Phil from UOM (Degree awarded 2016)  
Dynamical Behavior of Fractional Order HIV/AIDS epidemic Model
11. Haider Ali Khan M.Phil from UOM (Degree awarded 2016)  
Modeling and Analysis of Communicable Diseases with Nonlinear Incidence Rates
12. Abdullah M.Phil from UOM (Degree awarded 2016)  
dissertation entitled Analysis of vector-borne diseases with vertical and horizontal transmission in host population
13. Ms. Shamza Nawab M.Phil from UOM (Degree awarded 2017)  
Modeling and the effect of multiple controls strategies on different Hepatitis B infected individuals

14. Muhammad Naeem Jan M.Phil from UOM (Degree awarded 2018, HEC funded)
15. Zakir Ullah M.Phil from UOM (Degree awarded 2018, HEC funded)
16. Muhammad Wasim M.Phil from UOM (Research in progress, HEC funded)
17. Muhammad Ibrahim M.Phil from UOM (Research in progress, HEC funded)

## **0.10 Research Interest**

1. Model Formulation and Analysis of Infectious Diseases
2. Predator-Prey Population and Mathematical Modeling
3. Fluid Dynamics (Blood flow in a vessel and mathematical modeling)
4. Optimal Control Theory and Applications
5. Homotopy Perturbation Method
6. Stability Analysis and Computational Modeling
7. Applications of ODE, PDE and Fractional Differential Equations

## **0.11 Membership of Academic Bodies**

1. Advanced Studies & Research Board (ASRB) University of Malakand
2. Board of Studies Department of Mathematics, Abdul Wali Khan University Mardan
3. Member of Academic Council University of Malakand
4. Korean Mathematical Society (KMS)
5. Society for Industrial and Applied Mathematics (SIAM)
6. Korean Society for Mathematical Biology (KSMB)
7. Member of Academic Council Abdul Wali Khan University Mardan

8. Korean Society for Industrial and Applied Mathematics (KSIAM)
9. Member as Approved Expert of Committee of Courses (CC) Allama Iqbal Open University, Islamabad
10. Board of Faculty Abdul Wali Khan University Mardan
11. Board of Faculty Gomal University D.I. Khan
12. House Allotment Committee University of Malakand
13. Board of Studies Department of Mathematics, Islamia College University, Peshawar
14. Board of Studies Department of Mathematics, Abbotabad University of Science and Technology, Abbotabad
15. Antiplagiarism Standing Committee UOM
16. Member of Selection Board SBBU Sheringal Uper Dir KPK

## **0.12 Professional Skills and Participation**

1. KISAM work shop Seoul National University, Summer 2005, South Korea
2. Pusan-Komamoto work shop on Mathematics Feb 2007 in Japan
3. Pusan-Kyung Sang Mathematical Society in June 2007 South Korea
4. Participate as a speaker in the 6th International Conference on Industrial and Applied Mathematics (ICIAM) 2007 in Switzerland
5. Participate as a speaker in the International Conference on Mathematical Biology (ICMB) 2007 in Malaysia
6. KSMB 2nd meeting October 2007 in KAIST, South Korea
7. KISAM work shop in South Korea 2008



8. Participate as an Organizer and speaker in the 6th International Conference on Scientific Computing and Applications (SCA) June 2008, Pusan South Korea
9. Participate as a speaker in the 12th Asian Congress of Fluid Mechanics in KAIST South Korea
10. Participate as a speaker in the 2008 Global KMS International Conference in Jeju, South Korea.
11. Focal Person (Organizer) of Ist National Conference on Mathematical Science 2-4th Sep. 2014, University of Malakand (Funded HEC).
12. Participate in the Indigenous On-Campus Training Workshop of Administrative Staff on “Good Governance”, University of Malakand, November 17-21, 2014, Organized by QEC, HEC Islamabad.
13. Participate in the Two days work shop on “Strategic Management”, February 5-6, 2015, organized by British Council & HEC in Islamabad.
14. Participate in the one days work shop on “Research Proposal for Post-Doctorial Fellowship”, December 17, 2015, organized by ORIC (UOM) & HEC in Islamabad.
15. Participate in the three days training work shop for administrative staff on “Good Governance”, 27-29 April 2015, organized by Quality Enchantment Cell (UOM) & HEC in UOM.
16. Focal Person (Organizer) of one day workshop on Mathematics 13 Dec. 2016, University of Malakand (Funded ORIC).
17. Participate in the one days work shop on “Ph.D Supervision”, May 20, 2017, organized by HEC in Islamabad.

## **0.13 Academic Managerial Reforms**

- Syllabus

- Curriculum Review Committee
- Modification BS-4 Yrs and M.Phil/Ph.D Syllabus
- Design and implement M.Sc Mathematics semester system in UOM

## 0.14 Awards

1. RESEARCH PRODUCTIVITY AWARD - 2015  
by Pakistan Council for Science & Technology
2. RESEARCH PRODUCTIVITY AWARD - 2013  
by Pakistan Council for Science & Technology
3. RESEARCH PRODUCTIVITY AWARD - 2012  
by Pakistan Council for Science & Technology
4. Best University Teacher Award 2011  
by Higher Education Commission Islamabad
5. Best Teacher for Spring Semester 2009, National University of Science & Technology (NUST) Islamabad
6. First Position in Ph.D Course Work  
obtained 100% marks PNU South Korea

## 0.15 Presentations and Talks/Public Lectures

1. **Stability Analysis in the Nonlinear Spruce Budworm Population Model**, Pusan-Komamoto work shop on Mathematical analysis and its application 3-4 Feb 2007 Japan.
2. **The blood flow in vessel with compressible diameter approach by an Oldroyd-B fluid**, Pusan-Kyung Sang Mathematical society work shop 2nd June 2007 in Kyung Sang University Pusan, South Korea.

3. **Stability techniques in the SIR epidemic model**, 6th International Congress on Industrial and applied Mathematics 16-20 July 2007, in Zurich Switzerland.
4. **The effect of constant yield harvesting analysis in the spruce budworm population dynamics**, International conference on mathematical biology 4 – 6th, September 2007, Kualalumpur Malaysia.
5. **Optimal Vaccination and Treatment in the SIR Model**, in KISAM on 23-24th November 2007, South Korea.
6. **Control in the Smoking Dynamics**, in The 1st Young-Nam Young Mathematician Conference 28-29th March 2008, PNU Korea.
7. **Steady Oldroyd-B fluid in a blood vessel**, the Korean Mathematical Society 25-26th April 2008, Keung Meung University, South Korea.
8. **A Mathematical Study of Human Blood Flow in a Vessel**, Mathematics Colloquium for Junior Mathematicians May second 2008, PNU Korea.
9. **Mathematical Modeling in Biology**, Centre for Advanced Mathematics and Physics 7th July 2008, NUST, Pakistan.
10. **The Influence of the Orientation Stress Tensor on the Blood Flow in a Vessel**, the 12th Asian Congress of Fluid Mechanics 18-21 August 2008, Daejeon, Korea.
11. **Optimal Control of communicable diseases and prevention of epidemics**, Mathematics Colloquium for Junior Mathematicians August 2008, PNU Korea.
12. **Optimal vaccination of communicable diseases**, Global KMS International Conference 2008, Jeju Korea.
13. **Stability and control in a predator population**, International Bhurban Conference on Applied Sciences & Technology, Jan. 2009, Islamabad Pakistan.

14. **Stability and optimal control in epidemic models**, Conference on Recent Advances in Mathematical Methods, Models & Applications, April 18-19th 2009, LUMS Lahore, Pakistan.
15. **Stability and optimal control in epidemic models**, The 10th International Conference on Nonlinear Functional Analysis and Applications July 27-31 2009, Kyungnam University South Korea.
16. **Blood flow in a vessel with numerical simulations**, Intensive Workshop on Mathematical Models in Biology, 21-23th July 2009 South Korea.
17. **Optimal treatment in smoking dynamics**, Conference on Recent Advances in Mathematical Methods, Models Applications, April 17-18th 2010, LUMS Lahore, Pakistan.
18. **Dynamics of human blood in a vessel and orientation stress tensor**, The International Conference on Frustrated Spins Systems, Cold Atoms, Nanomaterials, July 14-16th 2010, Hanoi, Vietnam.
19. **Dynamical behavior and control of communicable diseases** 24th August 2011, Pusan National University, South Korea.
20. **Dynamical behavior and optimal control of vector born diseases** 21st June 2012, National Institute for Mathematical Sciences, South Korea.
21. **Blood Flow Induced by Brownian Force in a Vessel**, IWMMS 3rd International Workshop on Material Modeling and Simulation 3 - 6 July 2013, University of Malakand, Pakistan.
22. **Some Mathematical Models in Biology and Optimal Control**, Symposium held on 12 - 13 May 2014, COMSATS Institute of IT, Abbottabad, Pakistan.
23. **Epidemic model of hepatitis B with vaccination**, CASM International Conference on Differential Equations and Applications, May 26 - 28, 2016, LUMS, Pakistan.

24. **Dynamics and control of double delayed HIV-1 infection model**, Two Days International Conference on Causes and Consequences of HIV/AIDS in Rural and Urban Communities of Pakistan on 05-06 April 2017 Under HEC thematic research projection University of Malakand.
25. **Asymptotic Analysis and Optimal Control Strategies of Infectious Diseases**, 3rd National Conference of Mathematics Sciences, 27-28 April, 2017, Islamic International University, Islamabad.

## 0.16 Invited Talks

1. **The Non-Newtonian Blood Flow in Vessel with the Configuration of Brownian Force**, the 25th PNU-POSTECH Algebraic Combinatorics Seminar May 3, 2008, POSTECH Korea.
2. **Stability analysis and optimal control in communicable diseases**, COMSATS, May 4, 2009, Islamabad Pakistan.
3. **Dynamical behavior of infectious disease and role of optimal control theory**, 09 International Workshop on Nonlinear PDE and Applications 29 June 2nd July Pusan National University South Korea.
4. **Some Mathematical Models in Biology** Summer Intensive Lecturers Program for Mathematical Biology 17-20th July 2011, Pusan National University South Korea.
5. **Summer School for UG students**, 28 June-2nd July 2011, Department of Mathematics PNU, South Korea.
6. **Annual Meeting of Korean Society for Mathematical Biology** , Modeling Dynamical Interactions Between Leptospirosis Infected Vector and Human Population, 25-26 August 2011, UNIST South Korea.
7. **China-Japan-Korea Mathematical Biology Conference**, Dynamical interactions and control of Leptospirosis infected vector and human population, 22-25 June 2012, PNU South Korea.

8. **Dynamical Behavior & Optimal Control of Vector Born Diseases**, Department of Mathematics and Electrical Engineering, City University of Science & Information Technology, 20th October 2012, Peshawar, Pakistan.
9. **Invited by Chairman Department of Mathematics, King Saud University**, Kingdom of Saudi Arab to discuss joint research, 14 April 2015 to 27 April 2015.
10. **Mathematical Modeling and Optimal Control Strategies for Some Infectious Diseases**, King Saud University, Kingdom of Saudi Arab, April 20, 2015.
11. **Blood Flow Induced by Brownian Force in a Vessel**, King Saud University, Kingdom of Saudi Arab, April 22, 2015.
12. **Mathematical Modeling and Optimal Control Strategies for Some Infectious Diseases**, Department of Mathematics, College of Science Al-Zulfi, Majmahh University, Kingdom of Saudi Arab, April 27, 2015.
13. **Transmission Dynamics and Optimal Control Strategies of Infectious Diseases**, Department of Mathematics, Faculty of Science, King Abdul Aziz University, Kingdom of Saudi Arab, April 29, 2015.
14. **Dynamical behavior of vector born diseases and multiple control strategies**, International Workshop on Nonlinear Analysis and Applications, University of Management Technology (UMT), Lahore, Pakistan, October 1- 3, 2016.
15. **Mathematical models of infectious diseases and multiple control strategies**, Workshop on Soft Computing and Their Applications, Kohat University of Science & Technology, Kohat Pakistan, October 25-26,2016.
16. **Spreading dynamic of vector borne diseases and multiple control strategies**, Department of Mathematic, 24 May 2017, GC University, Lahore Pakistan.

17. **Mathematical Modeling and Control of Smoking Epidemic in a Community**, two days workshop on Modeling, Simulation and Optimization, Kohat University of Science & Technology, Kohat Pakistan, April 19-20,2017.
18. **Mathematical Model of Blood Circulation in Human Body Induced by Brownian Force**, International Conference on Applied Mathematics, 22-25 May 2017, LUMS, Lahore, Pakistan.
19. **Mathematical analysis of communicable diseases and multiple control strategies**, 3rd International Conference of Pure and Applied Mathematics, 9-10 Nov. 2017, Sarghoda University, Pu Pakistan.
20. **Dynamical behavior of vector born disease and role of optimal control strategies**, International Conference on Applied Mathematics, 13-15 Nov. 2017, GC University, Lahore Pakistan.

## 0.17 Publications

### 0.17.1 Published

1. Tahir Khan, Gul Zaman, Ali Saleh Alshomrani, Spreading Dynamic of Acute and Carrier Hepatitis B with Nonlinear Incidenc, PlosOne, April 5, 2018  
<https://doi.org/10.1371/journal.pone.0191914>, IF:3.8.
2. Anwar Zeb, Sultan Hussain, Obaid J. Algahtani, Gul Zaman, Global Aspects of Age-Structured Cigarette Smoking Model, Mediterr. J. Math. (2018) 15:72 <https://doi.org/10.1007/s00009-018-1098-8c> Springer International Publishing AG IF:0.868.
3. Muhammad Altaf Khan, Saeed Islam, Gul Zaman, Media coverage campaign in Hepatitis B transmission model, Applied Mathematics and Computation 331 (2018) 378393 IF:1.738.
4. Amir Khan, Muhammad Shah, Hidayat Ullah Khan and Gul Zaman, Study of Jordan quasigroups and their construction, JOURNAL OF

TAIBAH UNIVERSITY FOR SCIENCE, 2018 <https://doi.org/10.1080/16583655.2018.1451061>.

5. Samia Bushnaq, Sajjad ALi Khan, Kamal Shah, **Gul Zaman**, EXISTENCE THEORY OF HIV-1 INFECTION MODEL BYUSING ARBITRARY ORDER DERIVATIVE OF WITHOUT SINGULAR KERNEL TYPE, Journal of Mathematical Analysis ISSN: 2217-3412, URL: [www.ilirias.com/jma](http://www.ilirias.com/jma) Volume 9 Issue 1 (2018), Pages 16-28.
6. Tahir Khan, Amir Khan, **Gul Zaman**, The extinction and persistence of the stochastic hepatitis B epidemic model, Chaos, Solitons & Fractals, Volume 108, March 2018, Pages 123-128 [IF:1.455](#).
7. Samia Bushnaq, Sajjad Ali Khan, Kamal Shah, **Gul Zaman**, Mathematical Analysis of HIV-1 Infection Model with CAPUTO-FABRIZIO Fractional Derivative, Bushnaq et al., Cogent Mathematics & Statistics (2018), 5: 1432521.
8. Asaf Khan and **Gul Zaman**, Global analysis of an Age-structured SEIR endemic model, Chaos, Solitons & Fractals, Volume 108, March 2018, Pages 154-165 [IF:1.455](#).
9. Nigar Ali, **Gul Zaman**, Muhammad Ikhlaq Chohan, Mathematical Analysis of Delayed HIV-1 Epidemic Model for the Competition of Two Viruses, Ali et al., Cogent Mathematics (2017), 4: 1332881.
10. Amir Khan, **Gul Zaman**, Yongjin Li, Saeed Ahmad, Altaf Hus-sain, The Oscillatory Motion of Oldroyd-B Fluid by Incorporating Some of the Mechanical Factors, Journal Applied Mathematics and Physics (2017) 5, 2402 - 2410, [IF:0.58](#).
11. Samia Buhhnaq, Sajjad Ali Khan, Kamal Shah, **Gul Zaman**, Existence Theory of  $HIV_1$  Infection Model by Using Arbitrary Order Derivative of Without Singular Kernel Type, Journal of Mathematical Analysis, Volum 10 issue X pages 1-13. [IF:0.00](#).
12. **Gul Zaman**, Il H. Jung, Delfim F. M. Torres, and Anwar Zeb, Mathematical Modeling and Control of Infectious Diseases, Computational and Mathematical Methods in Medicine Volume 2017 (2017), Article ID 7149154, 1 page [IF:0.937](#).



13. Tahir Khan, Il Hyo Jung, Amir Khan, **Gul Zaman**, Classification and sensitivity analysis of infected Hepatitis B individuals, *Theoretical Biology and Medical Modeling*, (2017) 14:22 DOI 10.1186/s12976-017-0068-3 [IF:1.439](#).
14. Zakir Ullah, **Gul Zaman**, Lie group analysis of magnetohydrodynamics tangent hyperbolic flow towards a stretching sheet with slip conditions, *Heliyon*, 3 Issue 11 (2017) e00443.
15. Amir Khan, **Gul Zaman**, Saeed Ahmad, M Ikhtlaq Chohan, Some Exact Solutions of Generalized Jeffrey Fluid Using N-Transform, *American Journal of Computational Mathematics*, 2017, 7, 402-412.
16. Amir Khan, **Gul Zaman**, Il Hyo Jung, MHD Oscillating Flow of Generalized Jeffrey Fluid Passing Through a Porous Rectangular Duct, *Journal of Porous Media*, Vol. 20(7) (2017) 649-661. [IF:1.035](#).
17. Amir Khan, Tahir Khan, Hidayat Ullah Khan, **Gul Zaman**, Construction of Right Nuclear Square Loop, *Matriks Sains Matematik (MSMK)*, 1(2) (2017) 1-3.
18. **Gul Zaman**, Young Han Kang, Il Hyo Jung, Dynamics of a smoking model with disease death rate, *APPLICATIONES MATHEMATICAE*, 44(2) 2017 pp. 281-295.
19. Vedat Erturk, **Gul Zaman**, Baha Alzalg, Anwar Zeb, Shaher Momani, Comparing two numerical methods for approximating a new giving up smoking model with fractional order derivative, *Iranian Journal of Science and Technology, Transactions A: Science*, pp 1-7, 25 September 2017, DOI 10.1007/s40995-017-0278-x, [IF:0.217](#).
20. Roman Ullah, **Gul Zaman**, Saeed Islam, Hakeem Ullah, S. Shafe, Control strategies of avian influenza pandemic model with time delay, *International Journal of Biomathematics*, Volume 10, No. 7 (2017) 1750104, [IF:1.05](#).
21. Amir Khan, Mehtab Khan, Hidayat Ullah Khan, **Gul Zaman**, On Left Alternative Loops, *Matriks Sains Matematik (MSMK)*, 1(2) (2017) 4-5.
22. Fatma BiBi, M. Ikhtlaq Chohan and **Gul Zaman**, The obesity prevention strategies in population dynamics, *Advanced Modeling and*

Optimization, Volume 19, (2017) 213-225.

23. Muhammad Zamir, **Gul Zaman**, Ali Saleh Alshomrani, Control Strategies and Sensitivity Analysis of Anthroponotic Visceral Leishmaniasis Model, JOURNAL OF BIOLOGICAL DYNAMICS, 2017 VOL. 11, NO. 1, 323338 <https://doi.org/10.1080/17513758.2017.1339835> **IF:1.835**.
24. Nigar Ali, **Gul Zaman**, Abdullah, Aisha M. Alqahtani, Ali Saleh Alshomrani, The effects of time lag and cure rate on the global dynamics of HIV-1 mode, BioMed research International, Volume 2017 (2017), Article ID 8094947, 11 pages, **IF:2.134**.
25. Amir Khan, **Gul Zaman**, Hydromagnetic Flow Near An Accelerating Plate In The Presence Of Magnetic Field Through Porous Medium, Georgian Mathematical Journal, DOI: 10.1515/gmj-2017-0017, **IF:0.417**.
26. Nigar Ali, **Gul Zaman**, Ali Saleh Alshomrani, Optimal Control Strategy of HIV-1 Epidemic Model for Recombinant Virus, Ali et al., Cogent Mathematics (2017), 4: 1293468.
27. **Gul Zaman**, Giphil Cho, Yong Han Kang, Jung Il Hyo, Optimal strategy of vaccination & treatment in an SIR epidemic model, Mathematics and Computers in Simulation, 136 (2017) 6377, **IF:1.124**.
28. Nigar Ali, **Gul Zaman**, M. Ikhlaq Chohan, Global Stability of Delayed HIV-1 Model with Saturations Reponses, Appl. Math. Inf. Sci. 11, No. 1, 189-194 (2017).
29. Tahir Khan, **Gul Zaman** and M. Ikhlaq Chohan, The transmission dynamic and optimal control of acute and chronic hepatitis B, Journal of Biological Dynamics, 2017 Vol. 11, No. 1, 172-189, **IF:1.38**.
30. **Gul Zaman** and Asaf Khan, Dynamical Aspects of an Age-structured SIR Endemic Model, Computer and Mathematics with Applications, 72 (2016) 1690 -1702, **IF:1.398**.
31. Mhammad Zamir, **Gul Zaman**, Ali Saleh Alshomrani (2016), Sensitivity Analysis and Optimal Control of Anthroponotic Cutaneous Leishmania, PLoSONE 11 August 9, 2016, **IF:3.05**.

32. Tahir Khan and **Gul Zaman**, Classification of different Hepatitis B infected individuals with saturated incidence rate, Khan and Zaman SpringerPlus (2016) 5:1082 DOI 10.1186/s40064-016-2706-3, **IF:0.98**
33. Anwar Zeb, Sulan Hussain, Syed Inayat Ali Shah, **Gul Zaman**, Asymptotic Behavior of Stochastic Hepatitis B Model with Controls, Neural, Parallel, and Scientific Computations 24 (2016) 121-130, **IF:0.163**.
34. Nigar Ali and **Gul Zaman** and M. Ikhtlaq Chohan, Dynamical Behavior of HIV-1 Epidemic Model With Time Dependent Delay, J. Math. Comput. Sci. 6 (2016), No. 3, 377-389, Available online at <http://scik.org>.
35. Nigar Ali and **Gul Zaman**, Obaid J. Algahtani, Stability analysis of HIV-1 model with multiple delays, Ali et al. Advances in Difference Equations (2016) 2016:88, DOI 10.1186/s13662-016-0808-4 **IF:0.643**.
36. Amir Khan, **Gul Zaman**, The Oscillating Motion of a Generalized Oldroyd-B Fluid in Magnetic Field with Constant Pressure Gradient, Special Topics & Reviews in Porous Media-An International Journal, 6(3), 251-260 (2016).
37. Nigar Ali and **Gul Zaman**, Asymptotic behavior of HIV-1 epidemic model with infinite distributed intracellular delays, Ali and Zaman. SpringerPlus (2016) 5:324, DOI 10.1186/s40064-016-1951-9 **IF:0.98**.
38. Anwar Zeb, **Gul Zaman**, Baha Alzalg and Vedat Suat Ertrk, Faisal Yousafzai, Madad Khan, Approximating a giving-up smoking dynamics on adolescent nicotine dependence in fractional order, PLoS ONE 11(4): (2016) e0103617. doi:10.1371/journal.pone.0103617 **IF:3.8**
39. Roman Ullah, Sakhi Jan, **Gul Zaman**, Saleem Khan, Saeed Islam, M.A. Khan, Hakeem Ullah, Mathematical Modeling of Vector-Borne Diseases, J. Appl. Environ. Biol. Sci., 6(1)57-62, 2016 **ISI**.
40. Abdullah, Il Hyo Jung, **Gul Zaman**, Asymptotic analysis and backward bifurcation of vector borne diseases, Cincia e Tecnica Vitivincola, Vol. 31(2) (2016) 532-545, **IF:0.479**.

41. Roman Ullah, Mehroz Khan, **Gul Zaman**, Saeed Islam, M. A.Khan, Sakhi Jan, T. Gul, Dynamical Features of a Mathematical Model on Smoking, *J. Appl. Environ. Biol. Sci.*, 6(1)92-96, 2016 [ISI](#).
42. Amir Khan, **Gul Zaman**, Unsteady Magnetohydrodynamic Flow of Second Grade Fluid Due To Uniform Accelerating Plate, *Journal of Applied Fluid Mechanics*, Vol. 9, No. 6, pp. 3127-3133, 2016 [IF:0.888](#).
43. Anwar Zeb, **Gul Zaman**, Comments on “Transmission Model of Hepatitis B Virus with Migration Effect”, *BioMed Research International* Volume 2015 (2015), Article ID 492513, 4 pages [doi.org/10.1155/2015/492513](https://doi.org/10.1155/2015/492513), [IF:1.579](#).
44. Obaid J Algahtani, Anwar Zeb, **Gul Zaman**, Shaher Momani, Il Hyo Jung, Mathematical Study of Smoking Model by Incorporating Campaign Class, *Wulfenia Journal*, Volume 22 (12) (Dec. 2015) 205-216, [IF:0.65](#).
45. Muhammad Zamir, **Gul Zaman**, Shoukat Fiaz, Mathematical model of cutaneous leishmania, with threshold conditions for infection persistence, *Advances in Mathematics and Statistical Sciences*, Proc. 3rd Int. Conf. Math. Comput. Stat. Sci. (MCSS '15), UAE, Feb. 22-24, 2015, pp. 480-487.
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## 0.18 **Book Published**

### 1. **Fluid Induced by Brownian Force**

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6. **Focal Person of one day workshop on Mathematics,** University of Malakand,  
Funded by ORIC(UOM) 13 December, 2016.
7. **Chief Proctor 3 years** (March 2011-to- March 2014) University of Malakand
8. **Focal Person** of the **Ist National Conference on Mathematical Science,**  
University of Malakand, Funded by HEC 11 - 13 August 2014.
9. Presenter from NUST in the meeting held in Pakistan Engineering Council Islamabad for preparation of Biomedical Engineering program
10. Meeting as a focal person with rector NUST and AMC at GHQ to develop research in Biomedical field
11. Member of advisor committee of the RCMS MS–Ph.D program
12. Participate the meeting as an expert to start B.E Biomedical Engineering in NUST
13. Member of the technical committee of the 35th International Nathiagali Summer College on Physics & Contemporary Needs
14. In charge of transport at CAMP
15. Coordinator of M.Phil–Ph.D Mathematics program 2010- 2102 at University of Malakand

## 0.21 Teaching Experience

1: Professor  
 Department of Mathematics  
 University of Malakand  
 Feb 12, 2018——Till Date

- 2: Professor  
Department of Mathematics, Abdul Wali Khan University Mardan  
(February, 2015, August 2015)
- 3: Associate Professor  
Department of Mathematics  
University of Malakand  
August 2015——Feb. 11, 2018
- 4: Associate Professor  
Department of Mathematics  
University of Malakand  
July 2012——19th February, 2015
- 5: Assistant Professor  
Department of Mathematics  
University of Malakand  
Oct 2010——July 2012
- 6: Assistant Professor (NUST)  
December 2008——Oct 2010-.  
Centre for Advanced Mathematics and Physics  
NUST, Islamabad Pakistan
- 7: Research Associate  
Department of Mathematics Pusan National University  
September 2006——November 2008.
- 8: Full time researcher  
Institute of Mathematical Sciences, College of Natural Sciences, Pusan National University  
March 2004——August 2006.
- 9: Lecturer  
Institute of Mathematical Sciences, College of Natural Sciences, Pusan National University  
March 2000——February 2004.
- 10: Lecturer (Private Colleges)  
July 1996——August 1999.

## **0.22 Member of Editorial Board (International Journals)**

1. VFAST Transactions of Applied Mathematics (Editor-in-Chief)
2. Computational Biology and Bioinformatics
3. Guest Editor of Special Issue (Perturbation Methods and Formal Modeling for Dynamic Systems ) Abstract and Applied Analysis
4. Leading Guest Editor of Special Issue (Mathematical Modeling and Control of Infectious Diseases) Computational and Mathematical Methods in Medicine

## **0.23 Reviewer of International Journals**

1. International Journal of the Physical Sciences
2. Journal of the Korean Society for Industrial and Applied Mathematics
3. Dynamical System & Differential Equations
4. World Applied Science Journal
5. Communication of the Korean Mathematical Society
6. Computational and Mathematical Method in Medicine
7. British Journal of Mathematics & Computer Science
8. International Journal of Biomathematics
9. Stochastic Analysis and Applications
10. Journal of Theoretical Biology
11. Springer Plus
12. Chaos, Solitons & Fractals

## **0.24 Linkages/Research Collaborations**

1. Work in progress with Professor Jung Il Hyo my Ph.D advisor Pusan National University South Korea
2. Professor Xue-Zhi Li, Xinyang Normal University, China
3. Professor Saito, Shimane University, Matsue, Japan
4. Dr. Saeed Islam Abdul Wali Khan University Mardan

5. Professor Sayed Inayat Ali Shah, Islamia College University Peshawar
6. Professor S.H. Shaker, King Saud University Saudi Arabia
7. Research in progress with Professor Kang Young Han Catholic University of Daegu, South Korea
8. Dr. Shaban Alays Egypt
9. Professor Shaher Momani, The University of Jordan, Jordan
10. Professor Vedat Suat ERTURK, Ondokuz Mayis University, Turkey
11. Professor J.M. Tchenche, University of Guelph, Ontario, Canada
12. Professor F.B. Agosto, Austin Peay State University, Clarksville, 37044, TN, USA.
13. Dr. Madad Khan, Department of Mathematics, COMSATS Abbotabad.
14. Dr. Obaid J Algahtani, Department of Mathematics, King Saud
15. Prof. Dr. Maia Marctheva, University, Saudia Arabia.
- University of Florida, 358 Little Hall Gainesville, FL 32611, USA.

## 0.25 Languages

1. Pushto
2. Urdu
3. English
4. Arabic
5. Korean

## 0.26 Hobbies/Extracurricular activities

Worked for five years with a community base organization namely Falahi Tanzeem Nawjawana Amlookdara based at Talash Dir(lower) Khyber Pakhtunkhawa

1⇒ To raise awareness among the people

2⇒ Protection of environment

3⇒ Self help

4 ⇒ Social Development

5⇒ Women and Development

6 ⇒ Bad effects of intoxicing Drug

Reading books  
Playing Cricket  
A member of the village social welfare committee

## **0.27**    **A list of References**

### **Dr. Jung Il Hyo**

Professor of Mathematics  
Pusan National University  
South Korea

### **Dr. Abdul Latif**

Professor of Mathematics  
Department of Mathematics, Faculty of Science,  
King Abdul Aziz University, Jeddah, Kingdom of Saudi Arab

### **Dr. Faiz Ahmad**

Professor of Mathematics  
School of Natural Sciences (SNS)  
NUST, Islamabad Pakistan