



Dr. Sania Qureshi

Associate Professor

(Top 2% Scientist World List declared by Stanford University USA in 2023–2025)



Date of birth: 02 April 1982



sania.qureshi@faculty.muet.edu.pk



+92 332 2255536



Marital status: Married



Department of Basic Sciences and Related Studies, Mehran University of Engineering & Technology, Jamshoro.



Publons
Google Scholar
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ResearchGate

Education

Postdoc: (08/2021-07/2022)

Department of Mathematics,
Mathematical Research Center,
Faculty of Arts and Sciences, Near
East Boulevard, ZIP: 99138 Nicosia,
TRNC Mersin 10 – Turkey.

Postdoc: (02/2023-11/2024)

Lebanese American University,
Lebanon.

PhD.: (2019) Institute of Mathematics
and Computer Science, University of
Sindh, Jamshoro, Pakistan. PCD No.
22035 (HEC, Pakistan).

Technical Skills

–SPSS 32
–Wolfram Mathematica 15.0
–Maple 2026.1
–MATLAB R2026a
–Overleaf Cloud

Areas of Expertise

–Applied Fractional Calculus
–Mathematical Epidemiology
–Mathematical Modeling
– Iterative Methods for Nonlinear
Systems $F'(X) = 0$ and IVPs

ACADEMIC EXPERIENCE

- 10/1/2022– Associate Professor of Mathematics: Department of Basic Sciences and Related Studies, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan.
- 2015–2022 Assistant Professor of Mathematics: Department of Basic Sciences and Related Studies, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan.
- 2008–2015 Lecturer of Mathematics: Department of Basic Sciences and Related Studies, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan.
- 2004–2008 Research Assistant of Mathematics: Department of Basic Sciences and Related Studies, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan.

ADMINISTRATIVE EXPERIENCE

- 7/2/2026 Subject Expert in Selection Board: Invited to serve as a Subject Expert in the Selection Board for the Post of Lecturer in Mathematics, Agriculture University, Tando Jam, Sindh, Pakistan.
- 2025– Member of Provincial Review Committee (PRC) for Curriculum and Textbook Development of Mathematics Grade I–XII, School Education and Literacy Department, Government of Sindh.
- 2024– Member: MUTA NEED CUM MERIT Scholarship Committee, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan.
- 2022– Coordinator of BS Mathematics Program: Department of Basic Sciences and Related Studies, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan.
- 2021– ISO Quality Coordinator 9001–2015: Department of Basic Sciences and Related Studies, Mehran University of Engineering and Technology, Jamshoro, Sindh, Pakistan.
- 2021, 2015 Member: Served as a Member of the Teachers Welfare Council for the Year 2021 and 2015.

ACHIEVEMENTS

- Awarded with a CERTIFICATE OF RECOGNITION for inclusion of the name in the prestigious Stanford University/Elsevier Top 2% Scientists List (2025) by Higher Education Commission (HEC) Islamabad during a ceremony for Recognizing Distinguished Pakistani Researchers and Scientists organized at NED University, Karachi on 22nd July, 2026.
- Awarded with BEST PRESENTATION CERTIFICATE on the topic An Optimized Hybrid Block Method with at least Fifth-order Convergence under Fixed and Adaptive Stepsize Formulation during the conference INTERNATIONAL SYMPOSIUM ON APPLIED MATHEMATICS AND ENGINEERING held on January 21–23, 2022, Biruni University Istanbul-Turkey.
- Awarded with WEN CHEN AWARD in Testimony of the High Regard of My Achievements in the Area of Fractional Calculus and its Applications at The First Online Conference on Modern Fractional Calculus and its Applications, Biruni University, Istanbul, Turkey, December 4–6, 2020.
- Awarded with Scholarship to participate in a training school titled “Advantages of the fractional models in dealing with real world problems” supported by COST Action 15225 held at Istanbul Gelisim University, Engineering and Architecture Faculty, Istanbul, Turkey in the period of October 8–12, 2018.



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- Maple 2026.1
- MATLAB R2026a
- Overleaf Cloud

Areas of Expertise

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- Mathematical Epidemiology
- Mathematical Modeling
- Iterative Methods for Nonlinear Systems $F'(X) = 0$ and IVPs

5. Awarded with HEC Scholarship titled “International Research Support Initiative Program, 2018” for the period from 1st August, 2018 to 30th January, 2019 in Institute of Computational Mathematics, Technische Universität Braunschweig, Germany.
6. Awarded with British Council Scholarship titled “Pakistan Scottish PhD Research Travel Grants for Women, 2016” for the period from 15th September, 2016 to 15th December, 2016 in Division of Mathematics, University of Dundee, Scotland, UK.

PROFESSIONAL CERTIFICATIONS

1. Statistics: Making Sense of Data – University of Toronto (Coursera), 2013. Topics: Probability, hypothesis testing, confidence intervals, linear regression.
2. Outcome Based Education (OBE) & Academic Quality Assurance – Udemy, 2021. Topics: OBE framework, learning outcomes, assessment methods, and academic quality assurance.
3. Statistics/Data Analysis with SPSS: Descriptive Statistics – Udemy, 2022. Topics: Data visualization, measures of central tendency and dispersion, descriptive analysis using SPSS.
4. Statistics/Data Analysis in SPSS: Inferential Statistics – Udemy, 2024. Topics: t-tests, ANOVA, chi-square tests, correlation, regression, and hypothesis testing in SPSS.

RESEARCH FELLOWSHIPS

- | | |
|------|--|
| 2024 | Received the position of a <u>Non-Resident Postdoctoral Research Fellow</u> at the Department of Computer Science and Mathematics, Lebanese American University, Beirut, Lebanon
February 01, 2024-January 31, 2025 |
| 2023 | Received an <u>offer for research collaboration with Near East University</u> , Mathematics Research Center, Department of Mathematics, Near East Boulevard, PC: 99138, Nicosia Mersin 10 – Turkey
November 01, 2023-October 31, 2024 |
| 2023 | Received the position of a <u>Non-Resident Postdoctoral Research Fellow</u> at the Department of Computer Science and Mathematics, Lebanese American University, Beirut, Lebanon
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November 01, 2022-October 31, 2023 |

RESEARCH METRICS

- Total Research Publications: 169+ Scopus/Web of Science
- Total Google Scholar Citations: 6467 on August 14, 2026
- Google Scholar h-index: 42 and i10-index: 110

SCIENTIFIC ACTIVITIES

1. Editorial Board Member: Pure Mathematics for Theoretical Computer Science. 2026–
2. Editorial Board Member: Cumhuriyet Science Journal, DergiPark AKADEMIK. 2026–
3. Editorial Board Member: Bulletin of Biomathematics, DergiPark AKADEMIK. 2024–
4. Editorial Board Member: Mathematical Modelling and Numerical Simulation with Applications 2024 –
5. Editorial Board Member: International Journal of Pioneering Technology and Engineering (IJPTE) (ISSN: 2822-454X). 2024 –



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–Mathematical Modeling
– Iterative Methods for Nonlinear
Systems $F'(X) = 0$ and IVPs

6. Regional Editor: SIGMA JOURNAL OF ENGINEERING AND NATURAL SCIENCES-SIGMA MUHENDISLIK VE FEN BILIMLERI DERGISI. May 05, 2021 – .

Publisher: YILDIZ TECHNICAL UNIV, YILDIZ CAMPUS, BESIKTAS, ISTANBUL, TURKEY, 34349. Web of Science Core Collection: Emerging Sources Citation Index

7. Associate Editor (From April 28, 2022 to date): Statistical and Computational Physics (specialty section of Frontiers in Physics and Frontiers in Applied Mathematics and Statistics). Scopus, WoS & X category of HEC.

8. International Editorial Advisory Board Member: Journal of Applied Mathematics and Computational Mechanics. March 07, 2021. Publisher: CZESTOCHOWA UNIV TECHNOLOGY, INST MATHEMATICS , ARMII KRAJOWEJ 21, CZESTOCHOWA, POLAND, 42-200.

9. Editorial Team Member: Journal of Fractional Calculus & Nonlinear System. December, 2020–.

10. Editorial Team Member: Journal of Mathematical Analysis and Modeling. December, 2020–

11. Review Editor: Mathematical and Statistical Physics, Frontiers. 2020–

GUEST EDITOR FOR ACADEMIC RESEARCH JOURNALS

1. Served as a Lead Guest Editor for the Special Issue on Advances in Fractional Calculus and Its Applications: Emerging Trends and Challenges for the Research Journal: Journal of Applied Mathematics and Computational Mechanics from August 1, 2023 to December 31, 2023. Scopus (Q3), WoS & HEC Y category with IF = 1.0.
2. Served as a Guest Editor for the Special Issue on Mathematical and Statistical Aspects in Health Sciences for the Research Journal: Computational and Mathematical Methods in Medicine with Publisher Hindawi from January 1, 2022 to October 14, 2022. Scopus, WoS & W category of HEC.
3. Served as a Lead Guest Editor for the Special Issue on Biophysics with Classical and Modern Fractional Calculus for the Research Journal: Journal of Applied Mathematics and Computational Mechanics from June 1, 2021 to December 31, 2021. WoS & Y category.
4. Served as a Guest Editor for the Special Issue on New Advancements in Pure and Applied Mathematics via Fractals and Fractional Calculus for the Research Journal: Fractal and Fractional. Deadline: March 2023, Scopus : Yes; WoS : Yes & X category. IMPACT FACTOR: 3.577.

REVIEW ACTIVITIES FOR RESEARCH JOURNALS

I have been reviewing several international research papers since 2018 for academic research publishers including Elsevier, Springer, MDPI, John Wiley & Sons, CRC Press, Hindawi, and many more. My Web of Science record verifies my review activities for the said research publishers.

INTERNATIONAL/NATIONAL CONFERENCES

1. Presented Research Talk as an Invited Speaker in Online Conference on the topic “Fox H-Functions as Exact Solutions for Caputo Type Mass Spring Damper System Under Sumudu Transform”. 13th INTERNATIONAL CONFERENCE ON APPLIED ANALYSIS AND MATHEMATICAL MODELING held on July 27-31, 2023 at Biruni University, Istanbul - Türkiye.
2. Presented a Lecture in Online Conference on the topic “Solving Generalized Hill’s and Meissner’s Equations by a Semi-Analytical Technique”. THREE DAYS, 4TH INTERNATIONAL CONFERENCE ON MATHEMATICAL EMPOWERMENT AND FUTURE TRENDS held on 20-22 November 2025 / GCWUF, FAISALABAD, PAKISTAN organized by Department of Mathematics, Government College University, Faisalabad & Department of Mathematics, Government of College Women University, Faisalabad.
3. Presented a Lecture in Online Conference on the topic “Mathematical modeling and analysis of tuberculosis Disease using ordinary differential equations with real data”. 7th INTERNATIONAL Anatolian Scientific Research Congress held on April 17-18, 2025 / Munzur University, Tunceli, Türkiye organized by Munzur University & IKSAD institute.



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4. Presented a Lecture in Online Conference on the topic “Solving Generalized Hill’s and Meissner’s Equations by Akbari-Ganji Method (AGM)”. 11th ANKARA INTERNATIONAL CONGRESS ON SCIENTIFIC RESEARCH held on January 10-12, 2025 / Ankara, Türkiye.
5. Presented a Lecture in Online Conference on An optimal numerical solver for solving systems of nonlinear equations using local and semilocal analysis with mixed coloring. 7TH INTERNATIONAL CONFERENCE ON MATHEMATICAL MODELING, APPLIED ANALYSIS AND COMPUTATION (ICMMAAC-24) held during April 18-20, 2024 in Lebanon.
6. Presented a Lecture in Online Conference on L-stable Explicit Nonlinear Method with Constant and Variable Step-size Formulation for Solving Initial Value Problems. BASKENT INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES-III held on September 23-25, 2022, Ankara, Türkiye.
7. Presented a Lecture in Online Conference on Modern Fractional Calculus and its Applications. Biruni University, Istanbul, Turkey, December 4–6, 2020.

WORKSHOPS CONDUCTED AND PARTICIPATED

1. Workshop Instructor/Facilitator, Research Skill Development Workshop Series (LaTeX and Research Methodology) — Conducted a session for 22BSM and 23BSM students at the Department of Basic Sciences & Related Studies (BSRS), Mehran University of Engineering & Technology, Jamshoro, focusing on LaTeX, research documentation, and academic writing skills. August 13, 2026.
2. Workshop: First Capacity Development Workshop for Strengthening Mathematics Education in Sindh Organized by Sindh Textbook Board Jamshoro, School Education & Literacy Department with the collaboration of Japan International Cooperation Agency (JICA) 1st – 2nd October, 2025
3. Conducted one-day workshop titled "LaTeX" at the Department of Basic Sciences and Related Studies for BS Mathematics Students, Mehran University of Engineering and Technology on August 08, 2024.
4. Conducted one-day workshop titled "Scientific Publishing" at the Department of Basic Sciences and Related Studies, Mehran University of Engineering and Technology on December 09, 2021.
5. Participated in the webinar titled "Dissecting the scholarly publishing process. An overview and guidance on publishing" on Wednesday 27, January, 2021.
6. Attended Elsevier-HEC Workshop on Journal indexing in Scopus. Higher Education Commission of Pakistan on Thursday 21, January, 2021.
7. Webinar: “How to become an effective peer reviewer”, Organized by REVIEWER CREDITS June 24, 2023.
8. Webinar: “Ultimate Secrets to Quickly get your Research paper Published”, Aristocrat IT Solutions Pvt Ltd.. May 15, 2021.
9. A 1-day Training: “Internal Quality Audit (ISO 9001:2015)”, Mehran University of Engineering and Technology, Jamshoro, Pakistan. October 13, 2020.
10. A 6-day Training: “International Istanbul Summer School in Applied Mathematics (IISSAM)”, Istanbul Gelisim University, Istanbul, Turkey. July 12-17, 2019.
11. A 5-day Training: “Advantages of the fractional models in dealing with real world problems”, Istanbul Gelisim University, Istanbul, Turkey. October 8-12, 2018.
12. Completed Five-Day Short Course on “Computational Fluid Dynamics with Ansys Fluent”, Organized by The Department of Basic Sciences and Related Studies, Mehran University of Engineering & Technology, Jamshoro. October 2-6, 2017.



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Areas of Expertise

–Applied Fractional Calculus
–Mathematical Epidemiology
–Mathematical Modeling
– Iterative Methods for Nonlinear
Systems $F'(X) = 0$ and IVPs

13. Completed Two-Day Short Course on “Computational Fluid Dynamics”, Organized by The Department of Basic Sciences and Related Studies, Mehran University of Engineering & Technology, Jamshoro. September 5-6, 2017.
14. Attended Four-Day Workshop for “Women on Leadership and Management in Higher Education”, Organized by The Chemical Engineering Department, in Collaboration with USPCAS-W, Society of Women Engineers, The Association of Commonwealth Universities & Mehran University of Engineering and Technology, Jamshoro. February 13-16, 2017.
15. Successfully completed (and received Statement of Accomplishment with 98%) online course for “Statistics: Making Sense of Data” offered by University of Toronto, Canada using the platform of coursera.org April 1 to May 31, 2013.
16. Participated in the One Day Training of “Presiding Officers and Assistant Presiding Officers” Organized by the Election Commission of Pakistan for the General Election. 2013.
17. Attended a Six Days Short Course on “AutoCAD 2013 2D”, Organized by The Directorate of Continuing Education, Mehran University of Engineering & Technology, Jamshoro. April 1-11, 2013.
18. Attended One Week Short Course on “BASICS OF MATLAB PROGRAMMING”, Organized by Mechanical Engineering Department, Mehran University of Engineering & Technology, Jamshoro. September 17-24, 2012.
19. Completed training course on “Introduction to Gender and Environment” organized by Chemical Engineering Department (WTM Link), Mehran University of Engineering & Technology, Jamshoro in collaboration with Institute for the Environment, Brunel University, West London, U.K. under “Waste Treatment and Management Link Program” Higher Education Commission – British Council Joint Higher Education Link Program Phase – II. November 10-15, 2008..

INTERNATIONAL BOOK CHAPTERS

1. Book Chapter: Gómez-Aguilar, J. F., & Atangana, A. (Eds.). (2022). Applications of Fractional Calculus to Modeling in Dynamics and Chaos. CRC Press.
2. Book Chapter: Applications of Fractional Calculus to Modeling in Dynamics and Chaos. Publisher: CRC Press, Taylor & Francis Group. January, 2021.
3. Book Chapter: Fractional Order Analysis: Theory, Methods and Applications. Publisher: John Wiley & Sons. 01 September, 2020.

NATIONAL BOOK REVIEWER

1. Volunteer Reviewer: Served as a volunteer reviewer for the textbook of MATHEMATICS for Class XII, Sindh Textbook Board, Jamshoro (2024).

RESEARCH PUBLICATIONS

1. Soomro, S. H., Dero, S., Keerio, A., Qureshi, S., Khashi'ie, N. S., Khan, U., & Ojok, W. (2026). Computational Analysis of Thermal Radiative Mixed Convection Nanofluid Flow Past a Deformable Sheet With Convective Boundary Conditions: Quadruple Solutions. Journal of Mathematics, 2026(1), 6652684.
2. Fadugba, S. E., Jeeva, N., Kekana, M. C., Adeniji, A. A., Fadugba, A. E., & Qureshi, S. (2026). A novel third order integrator using polynomial-exponential-trigonometric basis functions for solving the Omicron virus model: South Africa as a case study. Results in Control and Optimization, 100774.
3. Padder, A., Shah, T. U. R., Babu, R. A., Qureshi, S. (2026). Dynamical analysis of a 3–species food chain model considering the impact of refuge and harvesting factors. Arab Journal of Basic and Applied Sciences, 33(1), 60–80.
4. Tassaddiq, A., Tanveer, M., Alharbi, R., Albarakati, A., Kasmani, R. M., Qureshi, S. (2026). A computational framework for escape dynamics and fractal structures in transcendental complex maps. Fractal and Fractional, 10(4), 245.



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5. Odibat, Z., Qureshi, S., Cattani, C., Gómez-Aguilar, J. F., Yang, X. J., Baleanu, D. (2026). Analytical solutions of fractional Burgers' equation with exponential extension kernel derivatives. *Journal of Computational and Applied Mathematics*, 117620. <https://doi.org/10.1016/j.cam.2026.117620>
6. F. A. Oguntolu, O. J. Peter, B. I. Omede, G. B. Balogun, Z. O. Dere, and S. Qureshi, "A Fractional Order Model for the Transmission Dynamics of Meningococcal Meningitis With Real Statistical Data," *Mathematical Methods in the Applied Sciences* 49, no. 9 (2026): 9173–9205. <https://doi.org/10.1002/mma.70519>.
7. Gdawiec, K., Qureshi, S., Shaikh, F., Baleanu, D., Soomro, A., Argyros, I. K., Yavuz, M. (2026). Highly accurate and stable class of zero-finding numerical methods based on Daftardar–Jafari decomposition approach for engineering applications. *Mathematical Methods in the Applied Sciences*, 49(8), 8167–8208. <https://doi.org/10.1002/mma.70467>.
8. Padder, A., Matouk, A. E., Qureshi, S., Dehingia, K., Shah, T. U. R. (2025). Analyzing the impact of single feedback control strategy on the dynamics of fractional order tumor model. *Discover Applied Sciences*, 7(11), 1301.
9. Naseem, A., Gdawiec, K., Qureshi, S., Argyros, I. K., ur Rehman, M. A., Soomro, A., Padder, A. (2025). A high-efficiency fourth-order iterative method for nonlinear equations: Convergence and computational gains. *Journal of Complexity*, 101994.
10. Kullu, A., Priyadarshi, A., Jena, I., Sharma, N., Naik, P. A., Qureshi, S. (2025). Eradication of schistosomiasis through public health awareness and application of appropriate molluscicides to control snail population: An intervention strategy. *Journal of Biological Systems*, 33(3), 867–897.
11. Padder, A., Qureshi, S., Matouk, A. E., Dehingia, K. (2025). Dynamical analysis of a vector-borne disease model with control function strategies. *Discover Applied Sciences*, 7(9), 1031.
12. Andrawus, J., Musa, Y., Babuba, S., Yusuf, A., Qureshi, S., Mustapha, U. T., Ahmad, Y. U. (2025). Modeling the dynamics of pertussis to assess the influence of timely awareness with optimal control analysis. *Journal of the Nigerian Society of Physical Sciences*, 7(3), 2732.
13. Qureshi, Z. A., Qureshi, S., Shaikh, A. A., Shahani, M. Y. (2025). Optimizing tuberculosis dynamics through a comparative evaluation of mathematical models. *Communications in Mathematical Biology and Neuroscience*, Article ID 63.
14. Tassaddiq, A., Qureshi, S., Argyros, I. K., Chicharro, F. I., Soomro, A., Nizamani, P., Gdawiec, K., Hincal, E. (2025). A convergent and stable fourth-order iterative procedure based on Kung–Traub conjecture for nonlinear systems. *Applied Numerical Mathematics*, 214, 54–79.
15. Qureshi, S., Argyros, I. K., Ramos, H., Soomro, A., Nizamani, P., Thangkhempau, G., Panday, S. (2025). A stable optimal solver for nonlinear equations with semilocal convergence using majorizing sequences in Banach spaces. *SeMA Journal*, 1–35.
16. Padder, A. N., Ramesh, K., Qureshi, S. (2025). Stability and bifurcation analysis of a predator–prey system unveiling the role of prey refuge and cooperation with fading memory. *Journal of Applied Analysis Computation*, 16(1), 99–120.
17. Bitrus, K., Abdullah, F. A., Adewole, M. O., Andrawus, J., Qureshi, S., Soomro, A., Abdullahi, U. A. (2025). Uncovering the influence of public awareness on dengue population dynamics: A mathematical model approach. *Boletín de la Sociedad Matemática Mexicana*, 31(2), 86.
18. Naik, P. A., Yeolekar, M. B., Qureshi, S., Yavuz, M., Huang, Z., Yeolekar, M. (2025). Fractional insights in tumor modeling: An interactive study between tumor carcinogenesis and macrophage activation. *Advanced Theory and Simulations*, 8(7), 2401477.
19. Padder, A., Qureshi, S., Soomro, A., Shaikh, F., Hincal, E., Chang, C. W. (2025). Evaluating divorce dynamics through ODE modeling and statistical hypothesis testing. *Discover Applied Sciences*, 7(6), 592.
20. Andrawus, J., Ahmad, Y. U., Andrew, A. A., Yusuf, A., Qureshi, S., Denué, B. A., Salahshour, S. (2025). Impact of surveillance in human-to-human



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21. Argyros, I. K., Qureshi, S., Soomro, A., Awadalla, M., Padder, A., Argyros, M. I. (2025). Abstract convergence analysis for a new nonlinear ninth-order iterative scheme. *Mathematics*, 13(10), 1590.
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–Mathematical Modeling
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Systems $F'(X) = 0$ and IVPs

122. Berhe, H. W., Qureshi, S., Shaikh, A. A. (2020). Deterministic modeling of dysentery diarrhea epidemic under fractional Caputo differential operator via real statistical analysis. *Chaos, Solitons Fractals*, 131, 109536.
123. Mallah, A. A., Shaikh, A. A., Qureshi, S. (2020). An improved root location method for fast convergence of nonlinear equations. *Mathematical Theory and Modeling*, 10(5), 51–57.
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126. Qureshi, S., Yusuf, A., Aziz, S. (2020). On the use of Mohand integral transform for solving fractional-order classical Caputo differential equations. *Journal of Applied Mathematics and Computational Mechanics*, 19(3).
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129. Yusuf, A., Qureshi, S., Shah, S. F. (2020). Mathematical analysis for an autonomous financial dynamical system via classical and modern fractional operators. *Chaos, Solitons Fractals*, 132, 109552.
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133. Qureshi, S., Yusuf, A. (2019). Mathematical modeling for the impacts of deforestation on wildlife species using Caputo differential operator. *Chaos, Solitons Fractals*, 126, 32–40.
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136. Qureshi, S., Yusuf, A., Shaikh, A. A., Inç, M. (2019). Transmission dynamics of varicella zoster virus modeled by classical and novel fractional operators using real statistical data. *Physica A: Statistical Mechanics and Its Applications*, 534, 122149.
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138. Rajput, K., Shaikh, A. A., Qureshi, S. (2019). Comparison of proposed and existing fourth-order schemes for solving nonlinear equations. *Asian Research Journal of Mathematics*, 15(2), 1–7.
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–Mathematical Epidemiology
–Mathematical Modeling
– Iterative Methods for Nonlinear
Systems $F'(X) = 0$ and IVPs

140. Atangana, A., Qureshi, S. (2019). Modeling attractors of chaotic dynamical systems with fractal–fractional operators. *Chaos, Solitons Fractals*, 123, 320–337.
141. Qureshi, S., Atangana, A. (2019). Mathematical analysis of dengue fever outbreak by novel fractional operators with field data. *Physica A: Statistical Mechanics and Its Applications*, 526, 121127.
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144. Qureshi, S., Arangi, N. A., Baleanu, D. (2019). New numerical aspects of Caputo–Fabrizio fractional derivative operator. *Mathematics*, 7(4), 374.
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155. Kandhro, M. D., Shaikh, A. A., Qureshi, S. (2018). A new third order iterative integrator for Cauchy problems. *Journal of Applied Environmental and Biological Sciences*, 8(7), 26–35.
156. Kumar, P., Shaikh, A. A., Qureshi, S. (2018). Non–linear numerical schemes for exact solutions of initial value problems. *International Journal for Scientific Research Development*, 6(7), 681–684.
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158. Qureshi, S., Ramos, H. (2018). L–stable explicit nonlinear method with constant and variable step–size formulation for solving initial value problems. *International Journal of Nonlinear Sciences and Numerical Simulation*, 19(7–8).
159. Yusuf, A., Qureshi, S., Inç, M., Aliyu, A. I., Baleanu, D., Shaikh, A. A. (2018). Two–strain epidemic model involving fractional derivative with



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Mittag–Leffler kernel. Chaos: An Interdisciplinary Journal of Nonlinear Science, 28(12).

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161. Soomro, E., Shaikh, A. A., Qureshi, S. (2016). On the development of a new multi-step derivative free method to accelerate the convergence of bracketing methods for solving $(F(x)=0)$. Sindh University Research Journal–SURJ (Science Series), 48(3).
162. Qureshi, S., Sandilo, H., Sheikh, H., Shaikh, A. (2016). Local truncation error and associated principal error function for an iterative integrator to solve Cauchy problems. Science International, 28(4).
163. Memon, Z. U. N., Chandio, M. S., Qureshi, S. (2015). On consistency, stability and convergence of a modified ordinary differential equation solver. Sindh University Research Journal–SURJ (Science Series), 47(4).
164. Shaikh, A. A., Qureshi, S., Chandio, M. S. (2015). Minimum error bounds for local truncation errors to iteratively solve scalar and vector-valued ODEs. Sindh University Research Journal–SURJ (Science Series), 47(3).
165. Qureshi, S., Shaikh, A. A., Chandio, M. S. (2015). Critical study of a non-linear numerical scheme for initial value problems. Sindh University Research Journal–SURJ (Science Series), 47(4).
166. Shaikh, A. A., Chandio, F. H., Qureshi, S. (2015). Computation of wall shear stresses across various stenosis lengths in common carotid artery. Sindh University Research Journal–SURJ (Science Series), 47(2).
167. Amur, K. B., Memon, A. L., Qureshi, S. (2014). FEM based approximations for the TV denoising optimization problem. Mehran University Research Journal of Engineering Technology, 33(1), 121–128.
168. Memon, Z., Qureshi, S., Shaikh, A. A., Chandio, M. S. (2014). A modified ODE solver for autonomous initial value problems. Mathematical Theory and Modeling, 4(3), 80–85.
169. Memon, Z. U. N., Chandio, M. S., Rajpar, N. J., Shah, S. F., Qureshi, S., Shaikh, A. A. (2014). On local error bound of a modified ordinary differential equation solver. Sindh University Research Journal–SURJ (Science Series), 46(3).
170. Qureshi, S., Chandio, M. S., Junejo, I. A., Shaikh, A. A., Memon, Z. N. (2014). On error bound for local truncation error of an explicit iterative algorithm in ordinary differential equations. Science International, 26(2).

PHD THESIS: SUPERVISED

1. **Thesis Title:** Mathematical Modeling and Analysis of Tuberculosis Disease for Sindh Province of Pakistan with Deterministic Calculus (2025)
Scholar: Dr. Zohaib Ali Qureshi (completed)
Supervisor: Dr. Sania Qureshi
Co-supervisor 1: Prof. Dr. Asif Ali Shaikh
Co-supervisor 2: Dr. Yaqoob Shahani

PHD THESES: SUPERVISION/CO-SUPERVISION

1. **Thesis Title:** Multiple Solutions with Stability Analysis of Boundary Layer Flow and Heat Transfer in Nanofluids Past on Stretching/Shrinking Surfaces with Porous Medium (final defense in pending)
Scholar: Mr. Shahid Hussain Soomro
Supervisor: Dr. Sumera Dero
Co-supervisor: Dr. Sania Qureshi
2. **Thesis Title:** Development of a Family of Multi-Hybrid iterative Methods Based on Interpolation Techniques for Solving Non-Linear Physical Models
Scholar: Mr. Umair Khalid Qureshi (first progressive done)
Supervisor: Dr. Sania Qureshi
Co-supervisor: Prof. Dr. Asif Ali Shaikh



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–Mathematical Epidemiology
–Mathematical Modeling
– Iterative Methods for Nonlinear
Systems $F'(X) = 0$ and IVPs

3. **Thesis Title:** Development of a Family of Hybrid Block Methods for Solving Stiff and Non-stiff Systems of Ordinary and Partial Differential Equations with Applications

Scholar: Ms. Tasneem Laghari (initial seminar done)

Supervisor: Dr. Sania Qureshi

Co-supervisor: Prof. Dr. Asif Ali Shaikh

4. **Thesis Title:** Solving n-dimensional Nonlinear Equations by a Class of Optimal and Non-optimal Zero-finding Iterative Methods with Convergence and Stability Analysis

Scholar: Mr. Khalid Hussain Jamali (proposal submitted)

Supervisor: Dr. Sania Qureshi

Co-supervisor: Prof. Dr. Asif Ali Shaikh

MASTERS THESES: SUPERVISED/CO-SUPERVISED (36)

2026

1. **Thesis Title:** Development of an Optimal Iterative Method for Solving Non-linear Equations with a Weight Function Approach

Student Name: Ms. Famia Khokhar

2. **Thesis Title:** A Semi-Analytical Approach for Solving Nonlinear Reaction-Diffusion Michaelis-Menten Equation Using Temimi-Ansari Method

Student Name: Ms. Kubra Nizamani

3. **Thesis Title:** Application of Kashuri-Fundo-Adomian Method for Troesch's Boundary Value Problem

Student Name: Ms. Naghma

4. **Thesis Title:** Numerical Solution for Fitzhugh-Nagumo Partial Differential Equation Using an Optimal Iterative Root-Finding Method

Student Name: Ms. Tehreem

5. **Thesis Title:** Simplified Jafari Transform for Initial Value Problems of ODES and Volterra Integral Equations of the First Kind

Student Name: Ms. Paras Nizamani

6. **Thesis Title:** SOLVING NONLINEAR CHANDRASEKHAR INTEGRAL EQUATION USING A MODIFIED OPTIMAL TECHNIQUE

Student Name: Ms. Mubashara Shamshad

7. **Thesis Title:** Optimization Stability: A Novel Approach of Leaving Variable for Degeneracy in Linear Programming Problems

Student Name: Mr. Abdul Wahab

2025

8. A Data-Driven Statistical Approach to Modeling and Assessing Antimicrobial Resistance Trends in Hyderabad Region

Student Name: Mr. Gul Hassan Memon

9. A Hybrid Fourth-Order Optimal Iterative Technique Based on Weight Function Strategy

Student Name: Ms. Shabeena Sani

10. A Numerical Solver of Non-linear Fisher's Equation with Dirichlet Boundary Conditions

Student Name: Ms. Radhika

11. A Modified Sixth-order Iterative Method for Solving Nonlinear Unsteady Burgers' Equation

Student Name: Ms. Jameela Memon

2024

12. A differential quadrature method for fast convergence of numerical solutions of (1+1) Burgers' equation

Student Name: Mr. Khair Muhammad Saraz

13. Modified Technique to Solve Degeneracy in LP Problems

Student Name: Ms. Sadia Qureshi

14. A Modified Optimal Root-Solver with Convergence Analysis to Solve Non-linear Equations

Student Name: Mr. Irfan Ali Lashari



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15. A Modified Optimal Root-Solver with Convergence Analysis to Solve Non-linear Equations
Student Name: Mr. Ayaz Ali Rind
16. Efficient Three-step Method for Solving Nonlinear Equations with Accelerated Convergence
Student Name: Ms. Bharti Devi
17. A Modified Hybrid Method For Solving Non-Linear Equations With Computational Efficiency
Student Name: Mr. Shahzad Ali Soomro
18. A Hybrid Nonlinear Iterative Method for Solving Algebraic and Non-algebraic Equations in One and Higher Dimensions
Student Name: Mr. Muhammad Arif Rajput
19. Efficient Three-step Method for Solving Nonlinear Equations with Accelerated Convergence
Student Name: Mr. Asad Ali Chandio

2023

20. Efficient Three-step Method for Solving Nonlinear Equations with Accelerated Convergence
Student Name: Ms. Sana Fatima
21. A New Nonlinear Hybrid Technique with fixed and adaptive step-size approaches
Student Name: Mr. Shakir Ali

2022

22. A New Nonlinear Hybrid Technique with fixed and adaptive step-size approaches
Student Name: Mr. Amanullah Soomro
23. An Improved L-Stable Scheme for Initial Value Problems under Variable Step-size Approach
Student Name: Ms. Bakhtawar
24. A Convergent Scheme for Solving Initial Value Problems with Polynomial and Exponential Function
Student Name: Ms. Sobia Khalil
25. Modification of Newton type Method for Higher Convergence and Solving Nonlinear Equations
Student Name: Mr. Khalid Jamali
26. Improved L-Stable Method for Solving Initial Value Problem
Student Name: Mr. Lutuf Ali
27. Formulation and Analysis of a New Rational L-Stable Scheme suitable for Singular and Stiff Type of Initial Value Problems
Student Name: Ms. Sadia Arain
28. A New Modified Algorithm Based Upon Exponential and Polynomial Functions for Solving Initial Value Problems
Student Name: Mr. Kamlesh Lohana

2021

29. An Improved Root Location Method for Fast Convergence of Non-Linear Equations
Student Name: Ms. Khushbu Rajput

2019

30. To Develop Efficient Scheme for Solving Initial Value Problems in Ordinary Differential Equations
Student Name: Mr. Daud Kandhro
31. To Develop Initial Value Problems Exactly Solvable by Nonlinear Schemes
Student Name: Mr. Prem Kumar

2018

32. Development of a Nonlinear Iterative Method for Solving Initial Value Problems in Ordinary Differential Equations
Student Name: Ms. Tasneem Aliya

33. Development of a Numerical Scheme for Initial Value Problems with Reduced Slope Evaluations
Student Name: Mr. Yasir Ansari

34. To Modify the Improved Explicit Euler's Method to Solve the Initial Value Problems
Student Name: Mr. Sikandar Ali Chandi



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–Mathematical Modeling
– Iterative Methods for Nonlinear
Systems $F'(X) = 0$ and IVPs

2017

35. Determination of Approximate Root of Nonlinear Equations by Interpolation Technique

2016

36. An Accelerator for the Bracketing Methods for Locating Root of Nonlinear Equations $f(x) = 0$

Student Name: Ms. Erum Soomro

INTERNATIONAL PHD THESIS ASSESSMENT

1. Mathematical Modelling of Cancer Treatment with Immunotherapy and Magnetic Drug Targeting. Department of Mathematics and Statistical Sciences in the Faculty of Sciences, Botswana International University of Science and Technology (BIUST), 2022.

INTERNATIONAL MASTERS THESES ASSESSMENT

1. Modelling Substance Abuse in Botswana in Presence of Multiple Amelioration Stages and Out-Patient Rehabilitation: Optimal Control and Fractional-Order Dynamics. Department of Mathematics and Statistical Sciences in the Faculty of Sciences, Botswana International University of Science and Technology (BIUST), 2020.
2. Modeling of Groundwater Flow within a leaky aquifer with Fractal-Fractional Differential Operators. Faculty: Natural and Agricultural Sciences. University of the Free State: South Africa, 2020.
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