Saima Gul | Assistant Professor

Department of Mathematics NED University of Engineering and Technology Pakistan
✉ sagul@neduet.edu.pk

NED & HEC Approved Research Supervisor

Academic Mission

To engage in teaching and research in a university setting, enhancing students' conceptual understanding of mathematics and supporting their academic growth through effective instruction and mentorship.

Education (PhD)

Massey University **Palmerston North, New Zealand**
PhD in Mathematics
Functional differential equations arising in the study of a cell growth model
`https://mro.massey.ac.nz/handle/10179/15306`

Academic Appointments

Assistant Professor **NED University of Engineering and Technology**
2020–Present

Lecturer **NED University of Engineering and Technology**
2006–2020

Publications

2019: **PhD Dissertation**, "Functional differential equations arising in the study of a cell growth model," *Massey University, New Zealand*.

2016: **B. van Brunt, S. Gul and G. C. Wake**, "A cell growth model adapted for the minimum cell size division," *ANZIAM*, ISSN: 1446-1811, 1446-8735.

2024: **S. Gul, M. Y. Tufail**, "GUI for conic sections: parabola, ellipse and hyperbola," *Revista Mexicana de Física E*, vol. 21(1), pp. 1–5, 2024. (ISSN: 2683-2216, ISI indexed).

2026: **M. Y. Tufail, S. Gul, S. A. A. Hashmi**, "Interactive MatLab GUI for exploring extreme values in bivariate functions," *Revista Mexicana de Física E*, vol. 23(1), pp. 1–6, 2026. (ISSN: 2683-2216, ISI & Scopus indexed).

2025: **M. Y. Tufail, S. Gul**, "Conformal image registration using the discretised Cauchy–Riemann equations," *The ANZIAM Journal*, 2025. (ISSN: 1446-1811, 1446-8735, JCR indexed).

2025: **M. Y. Tufail, S. Gul**, "Conformal pattern in the growth of human skulls," *Acta Biotheoretica*, vol. 73(13), 2025. (ISSN: 1572-8358, 0001-5342, JCR indexed).

2025: **M. Y. Tufail, S. Gul**, "An optimisation over the Möbius group for an optimal solution in image registration," *Punjab University Journal of Mathematics*, vol. 57(06), pp. 670–686, 2025. (ISSN: 1016-2526, JCR indexed).

2025: **M. Y. Tufail, S. Gul**, "GUI of complex plane on Excel spreadsheets," *Revista Mexicana de Física E*, vol. 22(1), pp. 1–3, 2025. (ISSN: 2683-2216, ISI indexed).

2024: **M. Y. Tufail, S. Gul**, "Comprehensive comparison between artificial intelligence and multiple regression: Prediction of Palmerston North's temperature," *Discover Sustainability*, 2024. (ISSN: 2662-9984,

JCR indexed).

2024: **M. Y. Tufail, S. Gul**, "The influence of characteristics of the Azores High on surface climate: A case study for Peninsular Spain," *Journal of Environmental Engineering and Science*, 2024. (ISSN: 1496-256X, 1496-2551, JCR indexed).

2024: **M. Y. Tufail, S. Gul, L. Jaben, S. Rasheed, S. Zia**, "A multiregressed COA–SAM model for predicting seasonal streamflow variability: A case study over Murray River Basin," *Global NEST Journal*, vol. 26(3), pp. 1–9, 2024. (ISSN: 1790-7632, JCR indexed).

2023: **M. Y. Tufail, S. Gul**, "Image registration using the rigid group," *Scientific Inquiry and Review*, vol. 7(1), pp. 71–86, 2023. (ISSN: 2521-2435, 2521-2427).

2022: **M. Y. Tufail, S. Gul**, "Statistical analysis for the traffic police activity: Nashville, Tennessee, USA," *KIET Journal of Computing and Information Sciences*, vol. 5(3), pp. 67–84, 2022. (ISSN: 2616-9592, 2710-5075).

Research Talks

2018: **S. Gul**, *"A cell growth model adapted for minimum cell size division,"* ANZIAM 2018 Conference, Hobart, Australia, 5–9 February 2018.

2016: **S. Gul**, *"A cell growth model adapted for minimum cell size division,"* ANZIAM 2016 Conference, Canberra, Australia, 7–11 February 2016.

2016: **S. Gul**, *"Second order functional differential equation involving Hermite operator,"* NZMS Colloquium, Victoria University of Wellington, New Zealand, 5–8 December 2016.

2015: **S. Gul**, *"Mathematics-in-Industry New Zealand (MINZ),"* Atrium Building, Massey University, Albany, Auckland, New Zealand, 29 June–3 July 2015.

2014: **S. Gul**, *"A cell growth model for minimum cell size,"* 4th Annual Interdisciplinary Doctoral Students Research Symposium (organised by MUPSA), Palmerston North, New Zealand, 28–29 October 2014.

2013: **S. Gul**, *"Mellin transform to solve pantograph type functional differential equations,"* NZMASP 2013, University of Canterbury Cass Field Station, Christchurch, New Zealand, 11–14 November 2013.

2012: **S. Gul**, *"Different techniques and methods for solving advanced functional differential equations,"* NZMS Colloquium, AgHort Building, Massey University, Palmerston North, New Zealand, 4–6 December 2012.

2012: **S. Gul**, *"Different techniques and methods for solving advanced functional differential equations,"* 15th Manawatu–Wellington Applied Mathematics Conference, Massey University, Palmerston North, New Zealand, 19 November 2012.

2012: **S. Gul**, *"Convolution technique to solve functional differential equations,"* IFS Postgraduate Seminar, Massey University, Palmerston North, New Zealand, 2012.

Workshops and Research Schools

2015: *"Mathematics-in-Industry New Zealand (MINZ),"* Atrium Building, Massey University, Albany, Auckland, New Zealand, 29 June–3 July 2015.

2014: *"Foxton Fizz: Workshop on Geometry and Numerics,"* Foxton, Palmerston North, New Zealand, 11–14 February 2014.

2013: *"Geometric mechanics and shape,"* Ohope Beach, Whakatane, New Zealand, 13–19 January 2013.

2012: *"Winterschule in numerical differential equations,"* Business Studies Central, Massey University, Palmerston North, New Zealand, 7–8 May 2012.

Academic Supervision

PhD Supervision

Mr. Aamir, *"A Mathematical framework for predictive modeling of high-water levels in Sindh,"* PhD dissertation. Role: Co-supervisor. Status: In progress (approved by ASRB).

Postgraduate Supervision

Adnan Haider, *"A comparative study of nature inspired metaheuristic optimization methods for time series forecasting,"* MS thesis. Role: Co supervisor. Status: In progress.

Sameer Khalid, *"Comparative study of modified RSA algorithms for key security,"* MS thesis. Role: Primary supervisor. Status: Completed.

Hafiz Syed Muhammad Kashif, *"Brain stroke prediction: An artificial intelligence-based risk assessment model,"* MS thesis. Role: Primary supervisor. Status: Completed.

Ms. Maham Fahim, *"Comparing artificial intelligence and fuzzy learning for the prediction of cardiovascular disease,"* MS thesis. Role: Co-supervisor. Status: Completed.

Muhammad Hunain Anwar, *"Spatial and temporal analysis of rainfall,"* MS thesis. Role: Co-supervisor. Status: Completed.

Bushra Rais, *"A study on analytic solution to a functional differential equation arising in a cell growth model,"* MS thesis. Role: Primary supervisor. Status: Completed.

Iqra Nawaz, *"Solutions to functional differential equations arising in the cell growth model,"* MS thesis. Role: Co-supervisor. Status: Completed.

Aizaz Hussain, *"Comparison of rigid registration with different optimisation techniques,"* MS thesis. Role: Co-supervisor. Status: Completed.

Farzana Yasmeen, *"Comparison of rigid registration with different objective functions,"* MS thesis. Role: Co-supervisor. Status: Completed.

Taught Courses

MT-226: Multivariable Calculus

MT-224: Complex Variable & Fourier Analysis

MT-114: Calculus

MT-221: Linear Algebra & Ordinary Differential Equations

MT-223: Ordinary Differential Equations & Fourier Series

MT-171: Differential & Integral Calculus

MT-515: Transforms and their Applications

MT-512: Advanced Discrete Mathematics

MT-502: Linear Algebra

MT-501: Differential Equations

MT-332: Advanced Calculus & Linear Algebra

MT-215: Differential Equations & Complex Variable

MT-227: Differential Equations

MT-225: Linear Algebra & Ordinary Differential Equations

Number Theory

Declaration

I hereby declare that the above information is correct to the best of my knowledge.