Dr. Rukhsana Kausar

PhD · Applied Mathematics

Department of Mathematics, University of the Punjab

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Education

University of Kaiserslautern — *Kaiserslautern, Germany*
PhD Applied Mathematics — *2014 - 2018*
- Advisor: Prof. DR. Stephan Trenn

University of Kaiserslautern — *Kaiserslautern, Germany*
MS Applied Mathematics — *2012 - 2014*

University of the Punjab — *Lahore, Pakistan*
MSC Computational Mathematics — *2000-2002*

University of the Punjab — *Lahore, Pakistan*
B.SC Computational Mathematics — *1997 - 1999*

University of the Punjab — *Lahore, Pakistan*
FSc Pre-Engineering — *1995 - 1997*

Professional Experience

2008-2019	**Lecturer**, PUCIT, University of the Punjab, Lahore, Pakistan
2019-2022	**Assistant Professor (Adhoc)**, Department of Data Science, University of the Punjab
2022-todate	**Assistant Professor (regular)**, Department of Mathematics, University of the Punjab

Publications

Published

Kall, J., Kausar, R., Trenn, S. (2017). Modeling water hammers via PDEs and switched DAEs with numerical justification. IFAC-PapersOnLine, 50(1), 5349-5354.

Kausar, R., Trenn, S. (2017, December). Impulses in structured nonlinear switched DAEs. In 2017 ieee 56th annual conference on decision and control (cdc) (pp. 3181-3186). IEEE.

Kausar, R., Tanveer, S., Riaz, M., Pamucar, D., Goran, C. (2022). Topological Data Analysis of m-Polar Spherical Fuzzy Information with LAM and SIR Models. Symmetry, 14(10), 2216.

Farid, H. M. A., Kausar, R., Riaz, M., Marinkovic, D., Stankovic, M. (2022). Linear Diophantine Fuzzy Fairly Averaging Operator for Suitable Biomedical Material Selection. Axioms, 11(12), 735.

Kausar, R., Farid, H. M. A., Riaz, M., Božanić, D. (2022). Cancer Therapy Assessment Accounting for Heterogeneity Using q-Rung Picture Fuzzy Dynamic Aggregation Approach. Symmetry, 14(12), 2538.

Kausar, R., Farid, H. M. A., Riaz, M., Gonul Bilgin, N. (2023). Innovative CODAS Algorithm for q-Rung Orthopair Fuzzy Information and Cancer Risk Assessment. Symmetry, 15(1), 205.

Accepted for Publication

Rukhsana Kausar; Muhammad Riaz; Vladimir Simic; Khadija Akmal; Muhammad Umer Farooq, Enhancing Solid Waste Management Sustainability with Cubic m-Polar Fuzzy Cosine Similarity, Soft computing

Rukhsana Kausar, Muhammad Riaz, Yasir Yasin, Muhammet Deveci, Dragan Pamucar, Measuring efficiency of Retrieval Algorithms with SchweizerSklar Information Aggregation, Information Sciences

Adel Alrasheedi, Jungeun Kim *, Rukhsana Kausar, q-Rung orthopair fuzzy information aggregation and their application towards material selection, AIMs Mathematics

In Review

Ashraf Al-Quran, Rukhsana Kausar, Touqeer Jamil,Enhancing Tropical Artificial Forests with Cubic Picture Fuzzy Fairly Aggregation Operators, IEEE Access

Yahya Almalki; Rukhsana Kausar ; Muhammad Riaz, Multi-Stage Linear Programming based CRITIC-CODAS Approach in Assessing Risk Factors of Infectious Diseases, Engineering Applications of Artificial Intelligence

Rukhsana Kausar; Asma Attique; Muhammad Riaz, Efficient healthcare waste management treatment using Einstein interactive aggregation operators, Engineering Applications of Artificial Intelligence

Awards, Fellowships, & Grants

2012	**Faculty development Program**, University of the Punjab	*$38,000*
2014	**DAAD Scholarship**, DAAD, Germany	*$ 40,000*

Presentations

** presenting author; + mentored undergraduate*

Invited Talks

Presentation at CDC 2017 , Melbourne , Australia.

Presentation at ECMI 2016 , Santiago de compestella, Spain.

Presentation at HYPO 2016 , Aachen Germany.

International conference on machine vision , National university of science and technology, Islamabad, Pakistan

Teaching Experience

Fall 2008	**Mathematical Modeling**, Lecturer
Spring 2009	**Quantitative techniques for business**, Lecturer
Fall 2009	**Probability and statistics**, Lecturer
Spring 2011	**Multi variable Calculus**, Lecturer
Fall 2011	**Operations research**,
Spring 2012	**Multi variable Calculus**, Lecturer
Fall 2013	**Numerical Analysis-I**, Lecturer
Fall 2014	**Discrete Mathematics**, Lecturer
Fall 2015	**Numerical Analysis-II**, Lecturer
Fall 2016	**Probability**, Lecturer
Fall 2017	**Calculus-I**, Lecturer
Fall 2019	**Calculus-I**, Assistant Professor
Spring 2019	**Mathematical and statistical analysis for data science**, Assistant Professor
Fall 2020	**Real Analysis**, Assistant Professor
Spring 2021	**Calculus-II**, Assistant Professor
Fall 2021	**Ordinary differential equations**, Assistant Professor
Spring 2022	**Linear Algebra**, Assistant Professor
Fall 2022	**Computational modeling**, Assistant Professor
Spring 2023	**Plane curves and analytical geometry**, Assistant Professor

Undergoing thesis

2023 **Mphil Thesis: Mathematical Modeling of Covid-19: Incorporating SEIR Dynamics and Analyzing the Impact of Vaccination** , Assistant Professor, University of the Punjab

2023 **Mphil Thesis: Mathematical Analysis of COVID-19: Utilizing SIR Model to Account for Immunity Dynamics**, Assistant Professor, University of the Punjab

2023 **Mphil Thesis: Reinforcement learning foir crowd simulation**, Assistant Professor, University of the Punjab

2023 **Mphil Thesis: Adapting large language models for judicial automation tasks**, Assistant Professor, University of the Punjab