KRISTU JAYANTI
(DEEMED TO BE UNIVERSITY)
Under Section 3 of UGC Act 1956
A CMI INSTITUTION | BENGALURU | INDIA

Centre for Research & Development

Research Supervisor (Guide) Profiles
Discipline of Supervision: Mathematics

Dr. Britto Jacob S
Assistant Professor
Department of Physical Sciences
School of Computational & Physical Sciences

Areas of Specialisation:
Mathematical Modeling of Infectious Diseases, Fractional-Order Differential Equations, Stability and Bifurcation Analysis in Dynamical Systems,

Dr. S. Britto Jacob is an Assistant Professor of Mathematics at Kristu Jayanti (Deemed to be University), Bengaluru, with over a decade of research experience in applied mathematics. His research primarily focuses on epidemiology, mathematical modelling, and fractional-order differential equations, contributing to the understanding of complex dynamical systems in biological and real-world contexts. As part of his research contributions, He has developed and analysed mathematical models for infectious diseases and other biological systems, with particular emphasis on stability analysis, bifurcation behaviour, and long-term system dynamics. His work integrates analytical approaches with computational techniques using tools such as MATLAB and Python, enabling deeper insights into nonlinear phenomena and memory-dependent processes. He has authored 36 research articles in reputed journals indexed in Scopus, Web of Science, and UGC-recognized peer-reviewed platforms. In addition, he has contributed three book chapters and authored a textbook titled Python for Mathematicians: A Comprehensive Manual for B.Sc. Undergraduates, reflecting his commitment to both research and pedagogy. Through his research, teaching, and supervision, He bridges mathematical theory, computational methods, and real-world applications in public health and theoretical biology. With a strong interest in advancing fractional calculus and its applications, he aspires to contribute to innovative interdisciplinary research while mentoring the next generation of mathematicians and researchers.

Selected Publications:

1. Selvam, A. G. M., Vignesh, D., & **Jacob, S. B.** (2023). Mathematical Modelling of COVID-19 Dynamics with Reinfection Using Fractional Order. In Mathematical and Computational Modelling of Covid-19 Transmission (pp. 1–23). River Publishers. https://doi.org/10.1201/9781032623146-1

2. **Jacob, S. B.**, Maria Selvam, A. G., Menaka, B., & Vianny, D. A. (2022). Complex Dynamics of Fractional Order SIR Model with Carrying Capacity in Discrete Time. In 2022 3rd International Conference on Communication, Computing and Industry 4.0 (C2I4) (pp. 1–6). IEEE. 2022 3rd International Conference on Communication, Computing and Industry 4.0 (C2I4). https://doi.org/10.1109/c2i456876.2022.10051268

3. **Jacob, S. B.**, Selvam, A. G. M., VS, P., & Vignesh, D. (2022). Chaos, Bifurcation and Stability analysis of Trophic Level Prey Predator System. In 2022 3rd International Conference on Communication, Computing and Industry 4.0 (C2I4) (pp. 1–6). IEEE. 2022 3rd International Conference on Communication, Computing and Industry 4.0 (C2I4). https://doi.org/10.1109/c2i456876.2022.10051374