Special Issue

Mathematical and Computational Models in Epidemic and Biological Systems

Message from the Guest Editor

Mathematical models have been pivotal during COVID-19, guiding public health measures and understanding pathogen dynamics. Traditional models often struggle due to limited data, driving the development of hybrid models that integrate machine learning with mechanistic frameworks. These models enhance predictive accuracy and adaptability, offering insights into pathogen interactions and control strategies for future pandemics. This Special Issue will delve into recent advancements in mathematical models of population-level transmission and within-host dynamics, network models, and AI/machine learning applications for pandemic pathogens. It will explore interactions between pandemic strains and seasonal pathogens, concurrent and sequential epidemics, control strategies such as vaccinations, and AI/machine learning applications in epidemiology. A particular focus will be on hybrid modelling approaches that integrate mechanistic modelling with machine learning techniques like Physics-Informed Neural Networks (PINNs). Additionally, this Special Issue will examine how human behavior towards control measures influences the spread of single and multiple pathogens.

Guest Editor

Dr. Lubna Pinky

Department of Biomedical Data Science, Meharry Medical College, Nashville, TN 37208, USA

Deadline for manuscript submissions

20 February 2026

Mathematics

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 4.6

mdpi.com/si/225214

Mathematics
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
mathematics@mdpi.com

mdpi.com/journal/mathematics

Mathematics

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 4.6

mdpi.com/journal/mathematics

About the Journal

Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

Editor-in-Chief

Prof. Dr. Francisco Chiclana
School of Computer Science and Informatics, De Montfort University, The Gateway, Leicester LE1 9BH, UK

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), RePEc, and other databases.

Journal Rank:

JCR - Q1 (Mathematics) / CiteScore - Q1 (General Mathematics)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.4 days after submission; acceptance to publication is undertaken in 2.4 days (median values for papers published in this journal in the first half of 2025).

MDPI