

Special Issue

Mathematical Modelling, Simulation, and Optimal Control in Epidemiology

Message from the Guest Editor

As a cornerstone of biology, mathematical modeling integrates theoretical analysis, numerical simulation, optimization theory, and abstractions of infectious disease dynamics to address frontier topics in epidemiology. In recent decades, computer science advancements have significantly enhanced mathematical biology's applicability, enabling theoretical developments to address diverse real-world public health challenges across diseases such as COVID-19, influenza, malaria, and HIV. This Special Issue of *Mathematics* focuses on the latest research in epidemic modeling, encompassing mathematical modeling, simulation, and optimization. We welcome original research articles and comprehensive reviews. Potential research areas include, but are not limited to, the following:

- evolutionary biology;
- complex systems biology;
- mathematical biophysics;
- infectious disease modeling;
- epidemic optimal control;
- simulation-based optimization.

We look forward to your valuable contributions to this Special Issue.

Guest Editor

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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.

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Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 17.3 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the second half of 2025).