

Special Issue

Mathematical Modeling in Epidemiology and Ecology

Message from the Guest Editor

This Special Issue, “Mathematical Modeling in Epidemiology and Ecology”, aims to highlight recent advances in mathematical and computational approaches that bridge these two interrelated fields. We welcome contributions that develop, analyze, or apply deterministic, stochastic, or data-driven models to describe biological and ecological processes at various spatial and temporal scales. Topics of interest include (but are not limited to), the following:

- Transmission dynamics and control of infectious diseases;
- Multi-host and vector-borne disease modeling;
- Spatial and network-based epidemic models;
- Population dynamics, species interactions, and ecosystem resilience;
- Effects of climate change and environmental variability on ecological and epidemiological systems;
- Integration of empirical data with mechanistic or statistical models;
- Optimization, uncertainty quantification, and decision-support frameworks.

By bringing together researchers working across the boundaries of mathematics, biology, and environmental sciences, this Special Issue seeks to foster interdisciplinary dialogue and promote innovative modeling methodologies that can enhance our understanding of complex living systems.

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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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).