

Special Issue

Integrating Data-Driven Insights into Mathematical Modeling of Infectious Diseases

Message from the Guest Editors

Modeling infectious disease dynamics is crucial for understanding and predicting disease spread. With advancements in data collection and large datasets, real-time data can enhance mathematical models. This Special Issue explores how big data, machine learning, and statistical techniques improve model precision. Mathematical models inform public health policies and optimize interventions. Integrating data-driven approaches like real-time epidemiological data and genetic sequencing is key for dynamic models. We invite contributions on the fusion of data science with epidemiological modeling, including:

- **Data-Driven Approaches:** Using machine learning and AI to improve disease prediction and control strategies.
- **Real-Time Surveillance Integration:** Incorporating health records, mobile health data, and social media for model refinement.
- **Parameter Estimation:** Enhancing model calibration and accuracy.
- **Data Quality Impact:** Addressing biases and gaps in data.
- **Predictive Modeling of Emerging Diseases:** Anticipating zoonotic transmission and outbreaks.

We welcome original research, reviews, and case studies on these topics.

Guest Editors

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Deadline for manuscript submissions

closed (31 May 2026)



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About the Journal

Message from the Editor-in-Chief

Editor-in-Chief

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 22.2 days after submission; acceptance to publication is undertaken in 3.8 days (median values for papers published in this journal in the second half of 2025).