

SIPO (Seminario de Investigadores Postdoctorales)

Speaker: Sebastian Báez (CMM).

Title: Compartmental Models for Infectious Diseases: Structure, Intervention, and Applications.

Abstract: Compartmental models have become a fundamental tool for understanding the spread of infectious diseases and evaluating the potential impact of public health interventions. By dividing populations into epidemiological classes and describing transitions between them, these models provide a flexible mathematical framework for studying disease dynamics across a wide range of contexts.

In this talk, I will present an overview of compartmental modeling for infectious diseases, including model formulation, qualitative analysis, intervention strategies, and interpretation of outcomes. Particular attention will be given to how these models can be adapted to capture different transmission mechanisms and inform decision-making under realistic epidemiological settings.

The discussion will be illustrated through two case studies developed during the last year: acute respiratory infections (ARI), with emphasis on RSV dynamics, and dengue as a vector-borne disease. These examples highlight both the strengths and limitations of compartmental approaches, and motivate a broader discussion on the role of mathematical modeling in public health and digital health research.

Date: Tuesday, April 7th at 2 pm

Place : John Von Neumann seminar room, 7th floor CMM.

