OMNI One Health Modelling Network for Emerging Infections | RÉUNIS Réseau une seule santé sur la modélisation des infections

OMNI-RÉUNIS Super-Spreader Seminar Series

This seminar series is intended to provide OMNI-RÉUNIS HQPs a platform to present their research, promote their ideas, share their research experiences, and establish connections among the various branches of the network.

This seminar will be hosted via Zoom
on Thursday, April 6, 2023, from 11:00-12:00 EST.

Register here and join us!

SEMINAR 10

INCORPORATING FEAR (UN)LEARNING MECHANISMS IN INFECTIOUS DISEASE MODELING

PRESENTER- AVNEET KAUR

Avneet Kaur is a graduate student at the University of British Columbia, Okanagan pursuing her MSc in Mathematics. Her main research interests lie in mathematical modelling and scientific computing. Her current research focuses on understanding the impact of human behavioural adaptation on the spread of disease. She is working on a mathematical model that integrates theories of human behavior from sociology and psychology with infectious disease modelling.

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ABSTRACT

INCORPORATING FEAR (UN)LEARNING MECHANISMS IN INFECTIOUS DISEASE MODELING

Effective management of epidemics requires not only modeling the disease itself but also human responses to information, policies, and socioeconomic contexts. I will present a model inspired by Epstein et al, that considers the fear of disease and the fear of vaccines as contagions that occur alongside the disease. The rates of fear acquisition and loss are obtained from neuroscientific theories of human behaviour adaptation, fear learning, transmission, and fear loss. I will discuss how incorporating fear changes the disease dynamics and the effect of various fear-related parameters on the final size of the disease. Our results show that the disease dynamics are governed by the interplay of the two fear contagions. Also, the final size of the disease shows a sudden spike when the behaviour-related parameters exceed a certain threshold.

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