Colloquium

Professor Naveen Vaidya

San Diego State University
Thursday, March 27th, 2025
French Hall Room 4221
4:00-5:00pm

Mathematical Models to describe spatiotemporal dynamics of mosquito-population and dengue-transmission under climate variation

Recent evolutionary adaptations of dengue-transmitting mosquitoes to colder places have raised severe public health concerns about dengue pandemics. In this talk, I will present novel mathematical models to study the effects of climate variation on mosquito populations and dengue transmission. Mathematical analysis of our models allows us to formulate reproduction numbers and establish theorems for the global dynamics of mosquito survival and dengue persistence. I will also present a math-model informed neural network (MINN) based method to predict spatiotemporal dynamics of mosquito populations. Our results provide critical insights into the role of climate change in shifting dengue-transmitting mosques and related epidemics in colder places.

Refreshments will be served 3:15– 3:45 pm in the Faculty Lounge
4118 French Hall West

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