1. Record Nr. UNINA9910411932003321

Titolo	Mathematical Modelling and Analysis of Infectious Diseases / / edited by Khalid Hattaf, Hemen Dutta
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-49896-4
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XI, 342 p. 113 illus.)
Collana	Studies in Systems, Decision and Control, , 2198-4190 ; ; 302
Disciplina	614.4015118
Soggetti	Engineering mathematics Engineering - Data processing Veterinary microbiology Mathematical and Computational Engineering Applications Veterinary Microbiology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Pathogen Evolution when Transmission and Virulence are Stochastic -- On the relationship between the basic reproduction number and the shape of the spatial domain -- Cause and Control strategy for infectious diseases with nonlinear incidence and treatment rate -- Global stability of a delay virus dynamics model with mitotic transmission and cure rate -- Dynamics of a fractional-order hepatitis B epidemic model and its solutions by nonstandard numerical schemes On SICA models for HIV transmission -- Analytical and numerical solutions of a TB-HIV/AIDS co-infection model via fractional derivatives without singular kernel.
Sommario/riassunto	This book discusses significant research and study topics related to mathematical modelling and analysis of infectious diseases. It includes several models and modelling approaches with different aims, such as identifying and analysing causes of occurrence and re-occurrence, causes of spreading, treatments and control strategies. A valuable resource for researchers, students, educators, scientists, professionals and practitioners interested in gaining insights into various aspects of infectious diseases using mathematical modelling and mathematical

analysis, the book will also appeal to general readers wanting to understand the dynamics of various diseases and related issues. Key Features Mathematical models that describe population prevalence or incidence of infectious diseases Mathematical tools and techniques to analyse data on the incidence of infectious diseases Early detection and risk estimate models of infectious diseases Mathematical models that describe the transmission of infectious diseases and analyse data Dynamical analysis and control strategies for infectious diseases Studies comparing the utility of particular models in describing infected diseases-related issues such as social, health and economic.