

1. Record Nr.	UNINA9910816709103321
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Titolo	Mathematical tools for understanding infectious diseases dynamics // Odo Diekmann, Hans Heesterbeek, and Tom Britton
Pubbl/distr/stampa	Princeton, : Princeton University Press, 2012
ISBN	1-283-57875-1 9786613891204 1-4008-4562-9
Edizione	[Course Book]
Descrizione fisica	1 online resource (517 p.)
Collana	Princeton series in theoretical and computational biology
Classificazione	SCI008000MAT003000MED022090
Altri autori (Persone)	HeesterbeekHans <1960-> BrittonTom
Disciplina	614.4
Soggetti	Epidemiology - Mathematical models Communicable diseases - Mathematical models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front matter -- Contents -- Preface -- Part I. The bare bones: Basic issues in the simplest context -- Part II. Structured populations -- Part III. Case studies on inference -- Part IV. Elaborations -- Bibliography -- Index
Sommario/riassunto	Mathematical modeling is critical to our understanding of how infectious diseases spread at the individual and population levels. This book gives readers the necessary skills to correctly formulate and analyze mathematical models in infectious disease epidemiology, and is the first treatment of the subject to integrate deterministic and stochastic models and methods. Mathematical Tools for Understanding Infectious Disease Dynamics fully explains how to translate biological assumptions into mathematics to construct useful and consistent models, and how to use the biological interpretation and mathematical reasoning to analyze these models. It shows how to relate models to data through statistical inference, and how to gain important insights into infectious disease dynamics by translating mathematical results back to biology. This comprehensive and accessible book also features numerous detailed exercises throughout; full elaborations to all exercises are provided. Covers the latest research in mathematical

modeling of infectious disease epidemiology Integrates deterministic and stochastic approaches Teaches skills in model construction, analysis, inference, and interpretation Features numerous exercises and their detailed elaborations Motivated by real-world applications throughout
