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| Titolo | Tutorials in Mathematical Biosciences IV [[electronic resource] ] : Evolution and Ecology / / edited by Avner Friedman |
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| Edizione | [1st ed. 2008.] |
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| Collana | Mathematical Biosciences Subseries, , 2524-6771 ; ; 1922 |
| Disciplina | 576.801/5118 |
| Soggetti | Biomathematics<br>Mathematical and Computational Biology<br>Physiological, Cellular and Medical Topics |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
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| Nota di bibliografia | Includes bibliographical references. |
| Nota di contenuto | Inference of Phylogenetic Trees -- Large-Scale Phylogenetic Analysis of Emerging Infectious Diseases -- Reaction–Diffusion Equations and Ecological Modeling -- The Dynamics of Migration–Selection Models -- Some Challenging Mathematical Problems in Evolution of Dispersal and Population Dynamics. |
| Sommario/riassunto | The book offers an easy introduction to fast growing research areas in evolution of species, population genetics, ecological models, and population dynamics. The first two chapters review the concept and methodologies of phylogenetic trees; computational schemes and illustrations are given, including applications such as tracing the origin of SARS and influenza. The third chapter introduces the reader to ecological models, including predator-prey models. This chapter includes and introduction to reaction-diffusion equations, which are used to analyze the ecological models. The next chapter reviews a broad range of ongoing research in population dynamics, including evolution of dispersal models; it also features interesting mathematical theorems and lists open problems. The final chapter deals with gene frequencies under the action of migration and selection. The book is addressed to readers at the level of grad students and researchers. A background in PDEs is provided. |