1.	Record Nr.	UNINA9910698645803321
	Autore	Ledder Glenn
	Titolo	Mathematical modeling for epidemiology and ecology / / Glenn Ledder
	Pubbl/distr/stampa	New York, NY : , : Springer Science+Business Media, LLC, , [2023] ©2013
	ISBN	9783031094545 9783031094538
	Edizione	[Second edition.]
	Descrizione fisica	1 online resource (376 pages)
	Collana	Springer Undergraduate Texts in Mathematics and Technology, , 1867-5514
	Disciplina	570.15118
	Soggetti	Biology - Mathematical models Computational biology Ecology - Mathematical models Epidemiology - Mathematical models
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Part I Mathematical Modeling -- 1 Modeling in Biology -- 2 Empirical Modeling -- 3 Mechanistic Modeling. Part II Dynamical Systems -- 4 Dynamics of Single Populations -- 5 Discrete Linear Systems -- 6 Nonlinear Dynamical Systems -- Appendix A. Using Matlab and Octave -- Appendix B. Derivatives and Differentiation -- Appendix C. Nonlinear Optimization -- Appendix D. A Runge-Kutta Method for Numerical Solution of Differential Equations -- Appendix E. Scales and Dimensionless Parameters -- Appendix F. Approximating a Nonlinear System at an Equilibrium Point -- Appendix G. Best Practices in the Use of Algebra -- Hints and Answers to Selected Problems -- Index.
	Sommario/riassunto	Mathematical Modeling for Epidemiology and Ecology provides readers with the mathematical tools needed to understand and use mathematical models and read advanced mathematical biology books. It presents mathematics in biological contexts, focusing on the central mathematical ideas and the biological implications, with detailed explanations. The author assumes no mathematics background beyond elementary differential calculus. An introductory chapter on basic principles of mathematical modeling is followed by chapters on

empirical modeling and mechanistic modeling. These chapters contain a thorough treatment of key ideas and techniques that are often neglected in mathematics books, such as the Akaike Information Criterion. The second half of the book focuses on analysis of dynamical systems, emphasizing tools to simplify analysis, such as the Routh-Hurwitz conditions and asymptotic analysis. Courses can be focused on either half of the book or thematically chosen material from both halves, such as a course on mathematical epidemiology. The biological content is self-contained and includes many topics in epidemiology and ecology. Some of this material appears in case studies that focus on a single detailed example, and some is based on recent research by the author on vaccination modeling and scenarios from the COVID-19 pandemic. The problem sets feature linked problems where one biological setting appears in multi-step problems that are sorted into the appropriate section, allowing readers to gradually develop complete investigations of topics such as HIV immunology and harvesting of natural resources. Some problems use programs written by the author for Matlab or Octave; these combine with more traditional mathematical exercises to give students a full set of tools for model analysis. Each chapter contains additional case studies in the form of projects with detailed directions. New appendices contain mathematical details on optimization, numerical solution of differential equations, scaling, linearization, and sophisticated use of elementary algebra to simplify problems.

2.	Record Nr.	UNINA9910713360403321
	Titolo	An Act to Improve the Facilities of the Federal Reserve System for the Service of Commerce, Industry, and Agriculture, to Provide Means for Meeting the Needs of Member Banks in Exceptional Circumstances, and for Other Purposes
	Pubbl/distr/stampa	[Washington, D.C.] : , : [U.S. Government Printing Office], , [1932]
	Descrizione fisica	1 online resource (2 unnumbered pages)
	Soggetti	Federal Reserve banks Statutes and codes.
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	"February 27, 1932." "(H.R. 9203)." "Public No. 44, 72d Congress."