

Modelling Complex Ecological Dynamics: An Introduction into Ecological Modelling for Students, Teachers & Scientists

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Model development is of vital importance for understanding and management of ecological processes. Identifying the complex relationships between ecological patterns and processes is a crucial task. Ecological modelling—both qualitatively and quantitatively—plays a vital role in analysing ecological phenomena and for ecological theory. This textbook provides a unique overview of modelling approaches. Representing the state-of-the-art in modern ecology, it shows how to construct and work with various different model types. It introduces the background of each approach and its application in ecology. Differential equations, matrix approaches, individual-based models and many other relevant modelling techniques are explained and demonstrated with their use. The authors provide links to software tools and course materials. With chapters written by leading specialists, “Modelling Complex Ecological Dynamics” is an essential contribution to expand the qualification of students, teachers and scientists alike.

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Review

From the reviews:

“This book is an edited collection of short chapters describing the variety and uses of mathematical models. Chapter authors … present a diversity of perspectives on modeling. … it is an overview of the purposes and types of models. … more valuable for those already familiar with one type of modeling who want to develop a broader understanding of ecological models. Summing Up … . Graduate students, researchers/faculty, and professionals.” (M. P. Gustafson, Choice, Vol. 49 (6), February, 2012)

“Comprehensive knowledge in ecological modelling is thus essential in modern ecology and the edited textbook ‘Modelling Complex Ecological Dynamics’ (MCED) provides an excellent overview on the development and the state-of-the-art in this wide scientific field that goes far beyond classic or simple method application. … a must read for graduate students, teachers and scientists in ecology.” (Rainer Waldhardt, Basic and Applied Ecology, Vol. 13 (5), August, 2012)

From the Back Cover
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