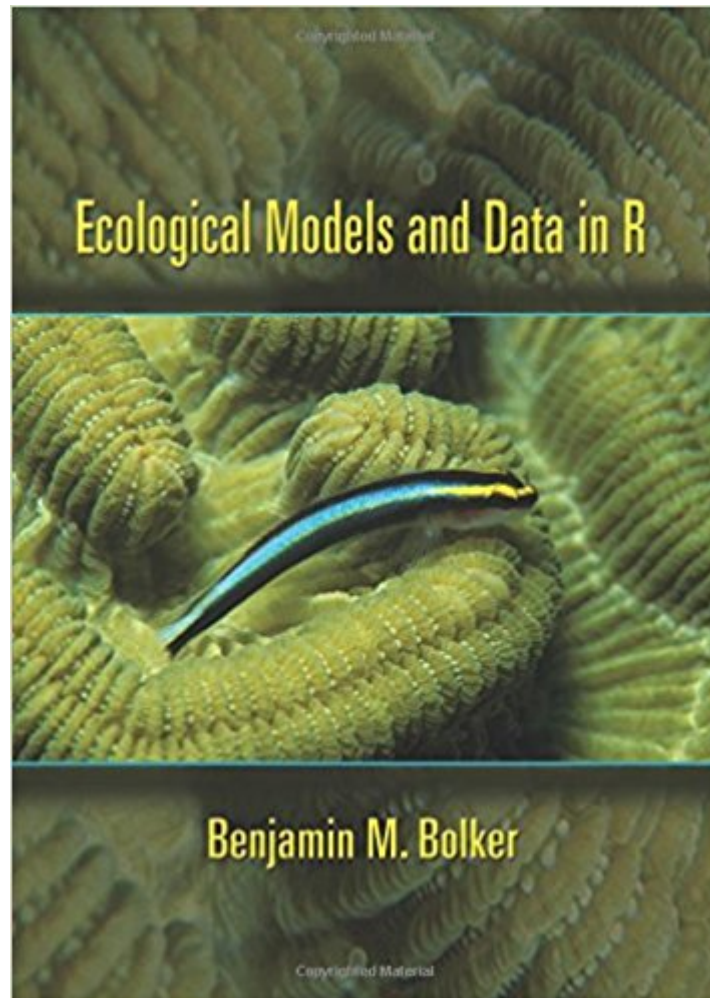




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Ecological Models And Data In R



Synopsis

Ecological Models and Data in R is the first truly practical introduction to modern statistical methods for ecology. In step-by-step detail, the book teaches ecology graduate students and researchers everything they need to know in order to use maximum likelihood, information-theoretic, and Bayesian techniques to analyze their own data using the programming language R. Drawing on extensive experience teaching these techniques to graduate students in ecology, Benjamin Bolker shows how to choose among and construct statistical models for data, estimate their parameters and confidence limits, and interpret the results. The book also covers statistical frameworks, the philosophy of statistical modeling, and critical mathematical functions and probability distributions. It requires no programming background--only basic calculus and statistics. Practical, beginner-friendly introduction to modern statistical techniques for ecology using the programming language R Step-by-step instructions for fitting models to messy, real-world data Balanced view of different statistical approaches Wide coverage of techniques--from simple (distribution fitting) to complex (state-space modeling) Techniques for data manipulation and graphical display Companion Web site with data and R code for all examples

Book Information

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Customer Reviews

"Bolker's book is a must-buy for anyone wanting to fit data to models and go beyond hypothesis testing, but it is certainly not an 'introductory' text in the sense of 'simple'. This book is a tour de force for anyone who studied ecology for his or her interest of nature's working. But it is the one

single book that can propel the statistical novice to the cutting edge of statistical ecology--albeit with blood, sweat and tears."--Carsten F. Dormann, *Basic and Applied Ecology*"[A] must for natural scientists and for statisticians who are interested in ecological applications. . . . Numerous enlightening footnotes, meaningful graphics and direct speech are evidence of substantial classroom experience of the author. . . . The book addresses students and researchers who have or have had some basic knowledge in ecology, mathematics and statistics. Delivering many examples and profound details on numerical aspects of maximum likelihood estimation, the book may also give a red line for a course in computational statistics."--Martin Schlather, *Biometrical Journal*"[T]his book succeeds both in explaining how to analyze many types of ecological data, and in clearly describing the theoretical background behind some common analyses and approaches. I expect to refer to it often."--Lynda D. Prior, *Austral Ecology*

"This user-friendly introduction to likelihood and Bayesian statistical methods for ecology students is set apart by its emphasis on implementation in R. This alone will make it more useful than previous books. In contrast to other texts, Bolker's book explains how to fit models to data in enough detail that even students with little programming experience will be able to follow along. I expect this to become an exceedingly popular textbook."--Stephan B. Munch, Stony Brook University"Benjamin Bolker is a pioneer in helping ecology students make the leap from a casual understanding of modern statistical methods to a hands-on application of these tools to their own precious data sets. This book shows the lessons learned from teaching this material to several cohorts of graduate students. No other book I've read gives such a good feel for the compromises scientists have to make in searching for good statistical models."--Brian Inouye, Florida State University"I have no doubt that this book will become a fixture on many ecologists' bookshelves (it certainly will be on mine). With a presentation that is gentle and encouraging rather than jargon-filled and intimidating, it empowers ecologists to develop their own statistical procedures. I strongly recommend it."--Timothy Essington, University of Washington

This is an excellent resource for anyone who wants to learn how to model GLMMs in R, complete with R code, graphs, worked examples, simulation methods & lots else. It is certainly a good introductory text, and doesn't assume too much by way of mathematical/statistical background. However, there's no shallow end to this book. I suspect even those who have mastered GLMMs will find it rewarding to return to this book time and again. Bolker's book is worth owning in my view.

I am a molecular biologist, trying to work my way through some ecological modeling. I found this book quite useful, since it has lot of examples and details. There is an online supplement for this book, where you can get all the scripts and pdf versions of the chapters, if you want. the R supplements, and the scripts give you a hands-on experience in handling the data in R. Tests like maximum likelihood, monte carlo are explained very well, and the R scripts help in understanding the nitty-gritties of programming. All in all, a good book.

A really good and helpful book.

For those who already had a good familiarity with R and general procedures of statistics, this book is a great choice, because cover different aspects of statistics compared with classics like "The R Book". Also a good choice for those biologists interested in a little deeper knowledge in mathematics

Need to learn more about R as it pertains to Ecology? This is the best book I've ever encountered with easy to understand instructions.

good

good, except that I was waiting this product for a pretty long time, even though it was still before the due day.

I'm doing infectious disease modeling for a living, and I got a lot out of this book. I was not too familiar with R and with stochastic models. Reading and working through this book taught me a lot. The book is really meant to be worked through carefully. Ben drops nuggets of wisdom everywhere - but you need to read carefully to catch them. It's not the ideal book if you need a quick reference on how to do "X". But as a textbook and to really learn things, it is great. That said, I would hesitate to use it for a real beginner's class. Some background with statistical concepts and a solid math foundation are necessary. And some programming experience, with either R or another language, helps a lot. If students are too weak in any of these areas, it would be hard to teach the material in a single semester course. But the great thing about this book is that anyone motivated to learn the subject matter can "simply" sit down and work through it on their own and at their own pace. It will take time, but it's totally worth it.

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