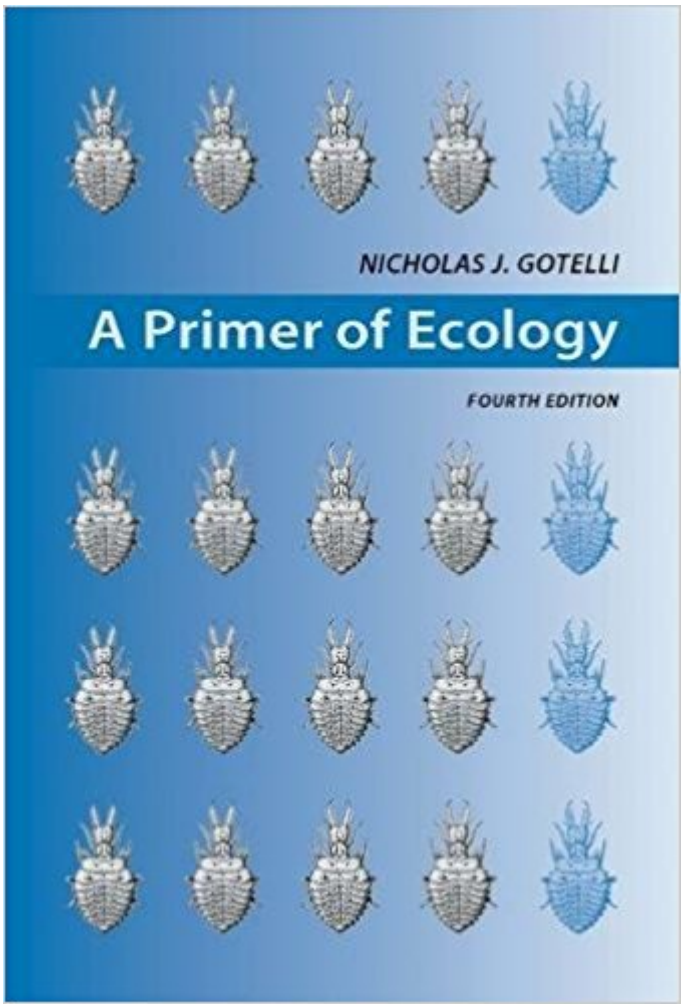
A Primer Of Ecology



Synopsis

A Primer of Ecology, Fourth Edition, presents a concise but detailed exposition of the most common mathematical models in population and community ecology. It is intended to demystify ecological models and the mathematics behind them by deriving the models from first principles. The book may be used as a self-teaching tutorial by students, as a primary textbook, or as a supplemental text to a general ecology textbook.The Primer explains in detail basic concepts of exponential and logistic population growth, age-structured demography, metapopulation dynamics, competition, predation, island biogeography, succession, and, in a chapter new to this edition, species richness. Each chapter is carefully graded from simple material that is appropriate for beginning undergraduates to advanced material, which is suited for upper-division undergraduates and beginning graduate students. Advanced topics include environmental and demographic stochasticity, discrete population growth and chaos, stage-structured demography, intraguild predation, nonlinear predator-prey isoclines, and passive sampling. Each chapter follows the same structure: model presentation and predictions, model assumptions, model variations, empirical examples, and problems.Essential equations are highlighted for students' use. Intermediate algebraic "expressions" are also illustrated so that students see where the equations came from. New terms are introduced in the text in boldface type to alert students to novel concepts. The Primer contains more mathematical detail than many ecology textbooks, but avoids jargon and mathematical terminology that can intimidate students. Both simple and advanced problems are included, followed by fully worked solutions so that students can gain confidence and a better understanding of the models. Citations are kept to a minimum.

Book Information

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Customer Reviews

Nicholas J. Gotelli is Professor in the Department of Biology at the University of Vermont. He graduated with a B.A. from the University of California, Berkeley, and earned his Ph.D. at Florida State University. Dr. Gotelli currently serves on the Board of Editors of Ecology. His research interests include: experimental invertebrate community ecology; metapopulation dynamics; parasite ecology and the evolution of host behavior; and biogeography and island biology.

My previous review of an ecology book praised it for being light on the math (Ecology: From Individuals to Ecosystems, by Michael Begon et al 2011). This book is quite the opposite, and it is great about it. This book takes a quantitative approach and explains equation after equation in its ecological context. It is beautiful in its approach and provdes a greater understanding of each concept. The reason I do not give it a full five stars is because the end questions are scarce and math is best learned with many many many problems. I highly recommend the text for understanding but to truly master the equations one will need a professor to give them problems to workout.

Ecological modeling has never been so clear to me! I love how this starts explaining each model from first principles, so that you can understand its uses and shortcomings, even if you are not very mathematically-minded.

Four and one half stars.Dr. Gotelli’s book is the most successful which I am familiar at "demystifying" the mathematical concepts in ecology. "A primer of ecology" is very well organized and written so as not to frighten off the uninitiated, but covers the mathematics well enough to be an adequate refresher for those that have slipped in some areas. The inclusion of ecological succession in the 3rd edition is an important addition and not merely a reason to put out a new version. I highly recommend this text to anyone who is interested in learning about ecological study, and I think it would make an excellent senior undergraduate or supplemental graduate text.

Good! It was what I expected!

It is extremely clear and non-tedious to read and learn. Perfect for introduction to ecological models. However, it does not replace an Ecology textbook (such as the Begon), this is just about the ecological models, but as such, is incredibly helpful.

valuable resource

This is a fantastically written, organized primer of ecology. I was required to read and learn this book for my comprehensive exams for my PhD. I have since referred to it many times of the past few years.

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