



Ecological Mechanics: Principles of Life's Physical Interactions

By Mark Denny

Princeton University Press. Hardback. Book Condition: new. BRAND NEW, Ecological Mechanics: Principles of Life's Physical Interactions, Mark Denny, Plants and animals interact with each other and their surroundings, and these interactions--with all their complexity and contingency--control where species can survive and reproduce. In this comprehensive and groundbreaking introduction to the emerging field of ecological mechanics, Mark Denny explains how the principles of physics and engineering can be used to understand the intricacies of these remarkable relationships. Denny opens with a brief review of basic physics before introducing the fundamentals of diffusion, fluid mechanics, solid mechanics, and heat transfer, taking care to explain each in the context of living organisms. Why are corals of different shapes on different parts of a reef? How can geckos climb sheer walls? Why can birds and fish migrate farther than mammals? How do desert plants stay cool? The answers to these and a host of similar questions illustrate the principles of heat, mass, and momentum transport and set the stage for the book's central topic--the application of these principles in ecology. Denny shows how variations in the environment--in both space and time--affect the performance of plants and animals. He introduces spectral analysis, a mathematical tool...



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