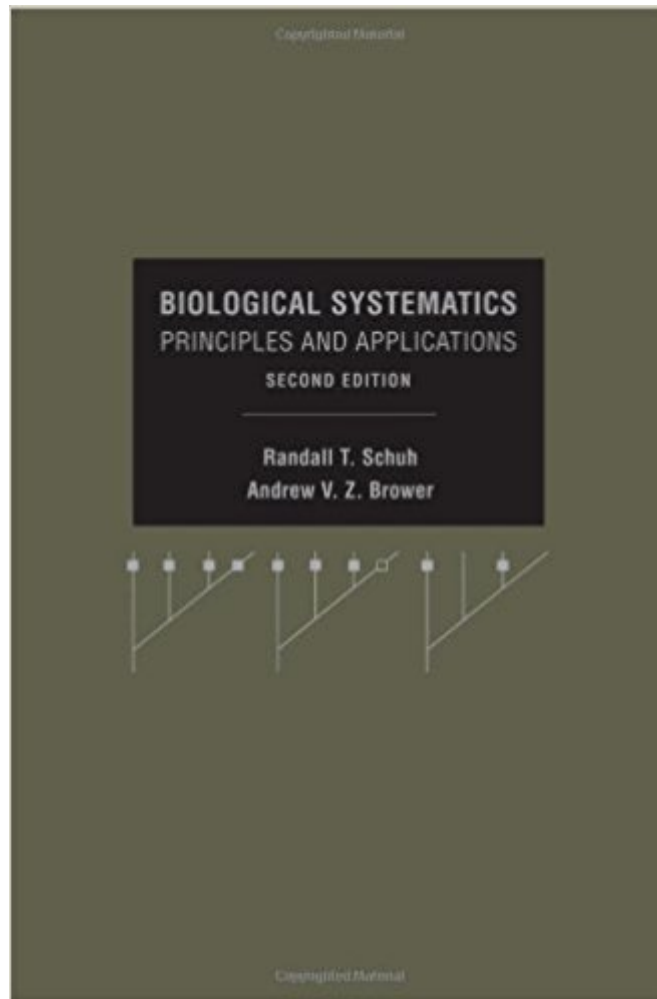


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Biological Systematics: Principles And Applications, 2nd Edition



Synopsis

Biological Systematics: Principles and Applications draws equally from examples in botany and zoology to provide a modern account of cladistic principles and techniques. It is a core systematics textbook with a focus on parsimony-based approaches for students and biologists interested in systematics and comparative biology. In this new and thoroughly revised edition, Randall T. Schuh and Andrew V. Z. Brower cover a wide range of topics: the history and philosophy of systematics and nomenclature; the mechanics and methods of analysis and evaluation of results; the practical applications of results and wider relevance within biological classification, biogeography, adaptation and coevolution, biodiversity, and conservation; and new software applications. Updated to reflect the exponential growth in the use of DNA sequence data in systematics, the second edition of Biological Systematics features new data techniques and a notable increase in the number of examples from molecular systematics that will be of interest to students increasingly involved in molecular and genetic work.

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Customer Reviews

Systematics is the art, the science, and the ongoing debate of assigning organisms to phylogenetic groups. If you're from bioinformatics, you may think, "Oh. Tree-building." This book is much more fundamental: it talks about the biological data and philosophical approach needed for any kind of organization. This book informs the beliefs behind your choice of algorithms and data to involve. Modern bioinformaticists usually assume that tree-building moves forward from DNA or

protein strings. That blinds us to the 200 years of classification based on physical features, behavior, and even geographic distribution. In that time, huge numbers of debates have sprung up, too many to list here. A few caught my interest though. First, suppose that "all pterogyte insects have wings". The fight starts when an apparent pterogyte shows up with no wings. Personally, I don't see the problem. If having wings is a defining feature, then it's a non-pterogyte, mutations excepted. If having wings is a pattern we noticed but not part of the definition, then the pattern needs work. I'm not a taxonomist, though. Another debate (p.53) is whether to accept parsimony, the principle of least mechanism, as a taxonomic tool. The objectors claim that it's suspect because of the assumptions behind it, whether or not anyone has "... stat[ed] precisely what the assumptions are." Well, someone may come up with an assumption some day, so we may as well get our objections in early. This book is distinctly non-mathematical. I don't know all that much, but I do know to ask what background probability model is used to decide whether a similarity or difference matters. That was never mentioned explicitly, but was silently buried in half-page descriptions of jack-knifing and boot-strapping.

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