

A comprehensive account of both basic and advanced material in phylogeny estimation, focusing on computational and statistical issues. No background in biology or computer science is assumed, and there is minimal use of mathematical formulas, meaning that students from many disciplines, including biology, computer science, statistics, and applied mathematics, will find the text accessible.

The mathematical and statistical foundations of phylogeny estimation are presented rigorously, following which more advanced material is covered. This includes substantial chapters on multi-locus phylogeny estimation, supertree methods, Markov models of sequence evolution, multiple sequence alignment techniques, and designing methods for large-scale phylogeny estimation. The author provides key analytical techniques to prove theoretical properties about methods, as well as addressing performance in practice for methods for estimating trees. Research problems requiring novel computational methods are also presented, so that graduate students and researchers from varying disciplines will be able to enter the broad and exciting field of computational phylogenetics.

"This book will become the natural choice for any graduate or advance undergraduate student of computer science interested in phylogenetics. It efficiently covers the most relevant aspects in computational phylogenetics, with easy-to-follow yet formal explanations (including theorems and proofs), and useful review questions and homework problems at the end of each chapter emphasizing the fundamental concepts."

David Posada, Universidade de Vigo, Spain

"*Computational Phylogenetics* is a timely and concise overview of algorithmic techniques that allow biologists to infer and analyze evolutionary trees from molecular data. Warnow is a leader in this field, and her book covers both classical theory and more recent developments, including several topics found in no other books. It is written in a style that will make it widely accessible."

Mike Steel, University of Canterbury, Christchurch, New Zealand

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