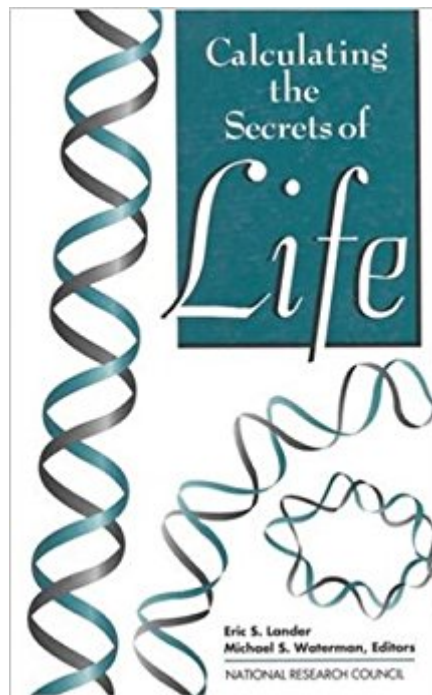# Calculating The Secrets Of Life: Contributions Of The Mathematical Sciences To Molecular Biology

Synopsis

As researchers have pursued biology's secrets to the molecular level, mathematical and computer sciences have played an increasingly important role--in genome mapping, population genetics, and even the controversial search for "Eve," hypothetical mother of the human race. In this first-ever survey of the partnership between the two fields, leading experts look at how mathematical research and methods have made possible important discoveries in biology. The volume explores how differential geometry, topology, and differential mechanics have allowed researchers to "wind" and "unwind" DNA's double helix to understand the phenomenon of supercoiling. It explains how mathematical tools are revealing the workings of enzymes and proteins. And it describes how mathematicians are detecting echoes from the origin of life by applying stochastic and statistical theory to the study of DNA sequences. This informative and motivational book will be of interest to researchers, research administrators, and educators and students in mathematics, computer sciences, and biology.

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