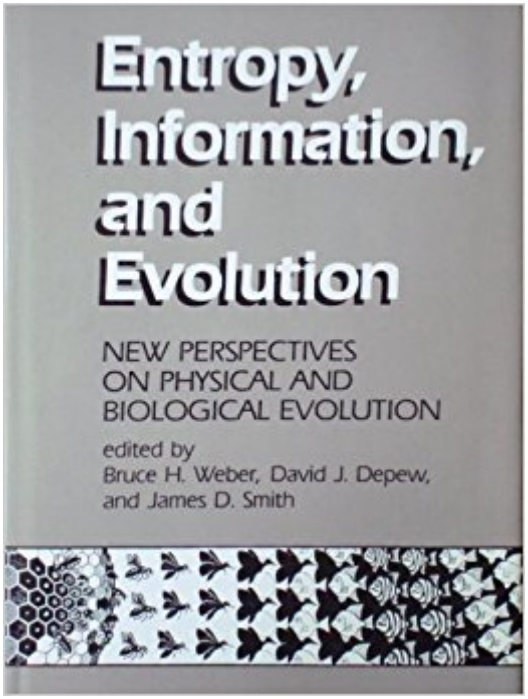
Entropy, Information, And Evolution: New Perspective On Physical And Biological Evolution (Bradford Books)



Synopsis

Can recent developments in thermodynamics and information theory offer a way out of the current crisis in evolutionary theory? One of the most exciting and controversial areas of scientific research in recent years has been the application of the principles of nonequilibrium thermodynamics to the problems of the physical evolution of the universe, the origins of life, the structure and succession of ecological systems, and biological evolution. These sixteen original essays by evolutionists, ecologists, molecular biologists, physical chemists, physicists, and philosophers of science provide the best current summary of this developing research program. Chapters in the book's first part - by Steven Frautschi, David Layser, and Dilip Kondoputi - explore the application of the second law of thermodynamics to physical evolution and the origins of life. Those in the second part - by Lionel G. Harrison, Lionel Johnson, Eric D. Schneider, and Jeffrey S. Wicken - take up the thermodynamics of ecology and evolution; Johnson and Wicken criticize neoDarwinian orthodoxy and present alternative theories relating thermodynamics to evolutionary ecology. In the book's third section, E. O. Wiley defends the theory that phylogenetic evolution may be predicted from a general version of the second law reformulated in terms of information theory, and Daniel R. Brooks, D. David Cumming, and Paul H. LeBlond also defend that controversial theory. The book concludes with a series of essays that evaluate these contributions and point out their implications for biology, philosophy, and the social sciences. The editors are all professors at California State University, Fullerton. Bruce H. Weber teaches chemistry and biochemistry, David J. Depew teaches philosophy, and James D. Smith teaches zoology. A Bradford Book.

Book Information

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Customer Reviews

Bruce H. Weber is the Robert Woodworth Professor of Science and Natural Philosophy at Bennington College and Professor of Biochemistry at California State University at Fullerton.David J. Depew is Professor of Communication Studies and Rhetoric of Inquiry at the University of Iowa.

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