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Volume 18

S. A. Levin, Cornell University, Ithaca, NY; T. G. Hallam, L. J. Gross, University of Tennessee, Knoxville, TN (Eds.)

Applied Mathematical Ecology

1989. XIV, 491 pp. 114 figs. Hardcover DM 98,- ISBN 3-540-19465-7

Contents: Introduction. - Resource Management. - Epidemiology: Fundamental Aspects of Epidemiology Case Studies. - Ecotoxicology. - Demography and Population Biology. - Author Index. - Subject Index.

This book builds on the basic framework developed in the earlier volume - "Mathematical Ecology", edited by T. G. Hallam and S. A. Levin, Springer 1986, which lays out the essentials of the subject. In the present book, the applications of mathematical ecology in ecotoxicology, in resource management, and epidemiology are illustrated in detail. The most important features are the case studies, and the interrelatedness of theory and application. There is no comparable text in the literature so far. The reader of the two-volume set will gain an appreciation of the broad scope of mathematical ecology.

Volume 19

J. D. Murray, Oxford University

Mathematical Biology

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This textbook gives an in-depth account of the practical use of mathematical modelling in several important and diverse areas in the biomedical sciences.

The emphasis is on what is required to solve the real biological problem. The subject matter is drawn, for example, from population biology, reaction kinetics, biological oscillators and switches, Belousov-Zhabotinskii reaction, neural models, spread of epidemics.

The aim of the book is to provide a thorough training in practical mathematical biology and to show how exciting and novel mathematical challenges arise from a genuine interdisciplinary involvement with the biosciences. It also aims to show how mathematics can contribute to biology and how physical scientists must get involved.

The book also presents a broad view of the field of theoretical and mathematical biology and is a good starting place from which to start genuine interdisciplinary research.

In preparation

Volume 20

J. E. Cohen, Rockefeller University, New York, NY; F. Briand, Gland, Switzerland; C. M. Newman, University of Arizona, Tucson, AZ

Community Food Webs

Data and Theory

1990. Approx. 300 pp. 46 figs. ISBN 3-540-51129-6

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