

Bohl, E.: **Mathematik in der Biologie**. 2nd Ed. – Springer-Verlag, Berlin – Heidelberg – New York 2001. ISBN 3-54041867-9. 157 pp., € 15.84, GBP 97.50, sFr 230.00.

Antidote to mathematics rather than appreciation of its beauty is a frequent product of our high-school education. Natural sciences are often avoided by students because “difficult” mathematics is required. Professor of University of Konstanz, Erich Bohl, demonstrates by his “Mathematik in der Biologie” that mathematical thinking can be presented to biologists using very natural and intuitive concepts. He constructs mathematical formalism within biology and for biology. In the first chapter, population dynamics serves to introduce numbers, functions, and derivatives that are further illustrated by quantifying rates of enzymatic reactions, presenting gas theory and other familiar examples. The author explains the most elemental mathematical concepts without assuming anything but curiosity and logical thinking. The second chapter is dedicated to

first-order differential equations and to integrals. The concepts are extended to functions of multiple variables in the third chapter. The last chapter is applying the tools introduced earlier to analyze time-evolution of systems consisting of two interacting populations. Simple set of two differential equations is solved using matrix formalism. By deriving mathematical terms and concepts directly from the needs of biology, the book lowers the barrier that frequently prevents students from using seemingly difficult abstractions. It is also an invaluable source of information for biologists who wish to go beyond superficial application of mathematical equations in order to gain confidence and understanding needed for a qualified use of mathematical tools.

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