Computer Science

SYSTEMS BIOLOGY

Principles, Methods, and Concepts

Edited by

Andrzej K. Konopka

Systems Biology: Principles, Methods, and Concepts focuses on the technical practical aspects of modeling complex or organic general systems. Designed as a desk reference, this volume serves the needs of practitioners of diverse fields of life science, as well as those of intellectually mature individuals who would themselves like to practice the art of systems biology in the future. It also provides in-depth coverage of modeling biochemical, thermodynamic, engineering, and ecological systems. Among other methods and concepts based in logic, computer science, and dynamical systems, it explores pragmatic techniques of General Systems Theory. This text presents biology as an autonomous science from the perspective of fundamental modeling techniques and serves as a complete resource for anyone interested in biology as an exact science.

Systems Biology: Principles, Methods, and Concepts —

- Provides the reader with a factually and methodologically rigorous tutorial, survey, and review of modeling convoluted (complex) organic systems
- Describes practical techniques of modeling complex systems in biochemistry, ecology, thermodynamics, and engineering
- Details relevant pragmatic methods from General Systems Theory, logic, computer science, dynamical systems, thermodynamics, and biochemical kinetics
- Includes a comprehensive expose of fundamental general modeling techniques along with a presentation of biology as an autonomous field of science
- Considers historical aspects of the field, as well as its likely future directions

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270 Madison Avenue
New York, NY 10016
2 Park Square, Milton Park
Abingdon, Oxon OX14 4RN, UK