



Elements of Computational Systems Biology (Wiley Series in Bioinformatics)

By Huma M. Lodhi, Stephen H. Muggleton



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Groundbreaking, long-ranging research in this emergent field that enables solutions to complex biological problems

Computational systems biology is an emerging discipline that is evolving quickly due to recent advances in biology such as genome sequencing, high-throughput technologies, and the recent development of sophisticated computational methodologies. Elements of Computational Systems Biology is a comprehensive reference covering the computational frameworks and techniques needed to help research scientists and professionals in computer science, biology, chemistry, pharmaceutical science, and physics solve complex biological problems. Written by leading experts in the field, this practical resource gives detailed descriptions of core subjects, including biological network modeling, analysis, and inference; presents a measured introduction to foundational topics like genomics; and describes state-of-the-art software tools for systems biology.

- Offers a coordinated integrated systems view of defining and applying computational and mathematical tools and methods to solving problems in systems biology
- Chapters provide a multidisciplinary approach and range from analysis, modeling, prediction, reasoning, inference, and exploration of biological systems to the implications of computational systems biology on drug design and medicine
- Helps reduce the gap between mathematics and biology by presenting chapters on mathematical models of biological systems
- Establishes solutions in computer science, biology, chemistry, and physics by presenting an in-depth description of computational methodologies for systems biology

Elements of Computational Systems Biology is intended for academic/industry researchers and scientists in computer science, biology, mathematics, chemistry, physics, biotechnology, and pharmaceutical science. It is also accessible to undergraduate and graduate students in machine learning, data mining, bioinformatics, computational biology, and systems biology courses.

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Editorial Review

Review

“The book should serve well as a resource for anyone interested in learning about computational systems biology.” (*The Quarterly Review of Biology*, 1 March 2012)

About the Author

HUMA M. LODHI, PhD, MBCS, is a researcher with the Department of Computing, Imperial College London. She has studied at Royal Holloway, University of London and has previously worked as a researcher with the Department of Computer Science, University of Sheffield.

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Both editors have published in leading international conferences and journals.

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