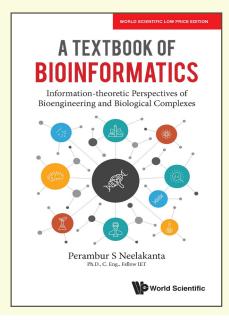




A Textbook of Bioinformatics

Information-Theoretic Perspectives of Bioengineering and Biological Complexes



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(Florida Atlantic University, USA)

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ABOUT THE BOOK

This book on bioinformatics is designed as an introduction to the conventional details of genomics and proteomics as well as a practical comprehension text with an extended scope on the state-of-the-art bioinformatic details pertinent to next-generation sequencing, translational/clinical bioinformatics and vaccine-design related viral informatics.

It includes four major sections: (i) An introduction to bioinformatics with a focus on the fundamentals of information-theory applied to biology/microbiology, with notes on bioinformatic resources, data bases, information networking and tools; (ii) a collection of annotations on the analytics of biomolecular sequences, with pertinent details presented on biomolecular informatics, pairwise and multiple sequences, viral sequence informatics, next-generation sequencing and translational/clinical bioinformatics; (iii) a novel section on cytogenetic and organelle bioinformatics explaining the entropy-theoretics of cellular structures and the underlying informatics of synteny correlations; and (iv) a comprehensive presentation on phylogeny and species informatics.

The book is aimed at students, faculty and researchers in biology, health/medical sciences, veterinary/agricultural sciences, bioengineering, biotechnology and genetic engineering. It will be a useful companion for managerial personnel in the biotechnology and bioengineering industries as well as in health/medical science.

READERSHIP

Undergraduates/graduates and researchers in biotechnology, bioengineering, bioinformatics, computational biology and biocomputing.

CONTENTS

- Bioinformatics: An Introduction:
 - Introduction
 - Information-Theoretics: A Review

• Informatics of Biomolecular Sequences:

- Biomolecular Informatics
- Pairwise and Multiple Biosequence Analyses and Next-Generation Sequencing

• Bioinformatic Resources and Translational/Clinical Informatics:

- Bioinformatic Resources: Databases, Information Networks, and Tools
- Translational and Clinical Bioinformatics

• Bioinformatics of Cytogenetic Complex and Viral Omic Landscape:

- Bioinformatics of Cellular Complex and Chromosomal Synteny
- Bioinformatics of Viral Omics

• Phylogenetic and Species Informatics:

- Evolution-Theoretics and Phylogeny: An Overview
- Bioinformatic Aspects of Phylogeny

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