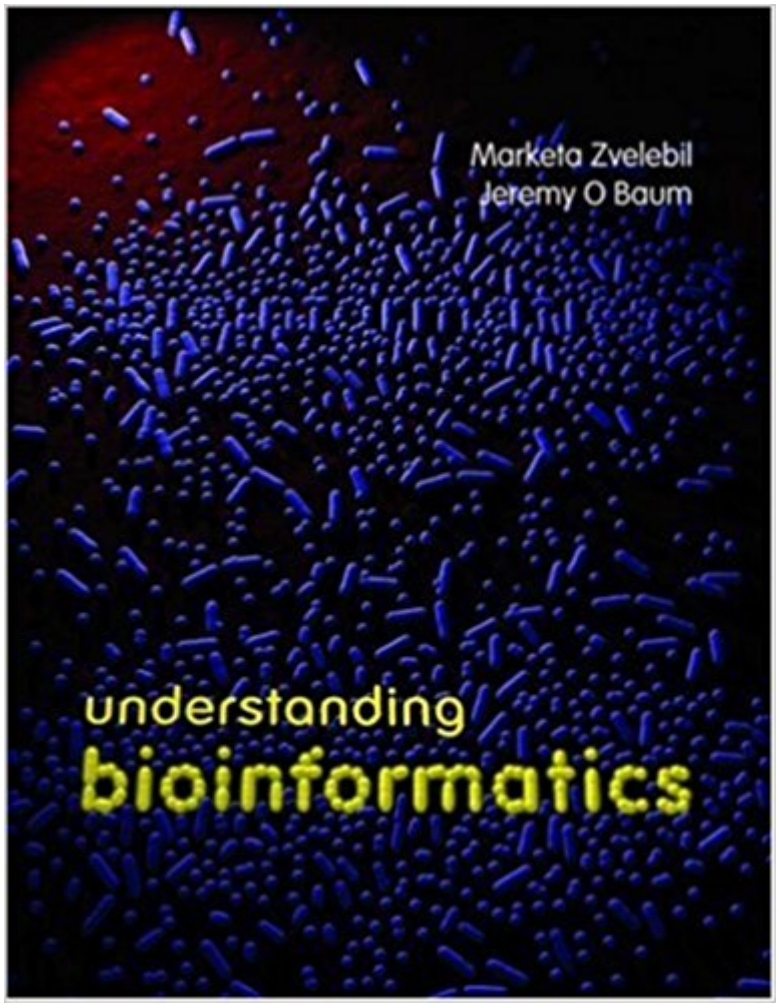
Understanding Bioinformatics



Synopsis

Suitable for advanced undergraduates and postgraduates, Understanding Bioinformatics provides a definitive guide to this vibrant and evolving discipline. The book takes a conceptual approach.Â It guides the reader from first principles through to an understanding of the computational techniques and the key algorithms.Â Understanding Bioinformatics is an invaluable companion for students from their first encounter with the subject through to more advanced studies.Â The book is divided into seven parts, with the openingÂ part introducing the basics of nucleic acids, proteins and databases.Â Subsequent parts are divided into 'Applications' and 'Theory' Chapters, allowing readers to focus their attention effectively.Â In each section, the Applications Chapter provides a fast and straightforward route to understanding the main concepts and 'getting started'. Each of these is then followed by Theory Chapters which give greater detail and present the underlying mathematics. In Part 2, Sequence Alignments, the Applications Chapter shows the reader how to get started on producing and analyzing sequence alignments, and using sequences for database searching, while the next two chapters look closely at the more advanced techniques and the mathematical algorithms involved.Â Part 3Â covers evolutionary processes and shows how bioinformatics can be used to help build phylogenetic trees.Â Part 4Â looks at the characteristics of whole genomes. InÂ Parts 5Â andÂ 6Â the focus turns to secondary and tertiary structure â " predicting structural conformation and analysing structure-function relationships.Â The lastÂ part surveys methods of analyzing data from a set of genes or proteins of an organism and is rounded off with an overview of systems biology. The writing style of Understanding Bioinformatics is notable for its clarity, while the extensive, full-color artwork has been designed to present the key concepts with simplicity and consistency.Â Each chapter uses mind-maps and flow diagrams to give an overview of the conceptual links within each topic.Â

Book Information

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Customer Reviews

’Congratulations on a fine book! I do not think I have seen such a comprehensive text on bioinformatics algorithms and techniques before. I think this will be an invaluable resource for the bioinformatics community and researchers of neighbouring disciplines.’ -Â Jaap Heringa, Free University, Amsterdam ’This is very well done.Â Compared to other competing textbooks, your book will be probably the first one that explains gene finding in detail.’ - Sun Kim, Indiana University, Bloomington, USA â ˆâ |provides an outstanding introduction to the main bioinformatics problems and tools, well-balanced between applications to biological problems and theory behind data processing methodsâ | an excellent and updated book for students of Bioinformaticsâ ™ Computer Methods and Programs in Biomedicine

Marketa Zvelebil is the team leader of cancer informatics at The Breakthrough Toby Robins Breast Cancer Research Centre. Jeremy O. Baum is an Honorary Teaching Fellow in the School of Crystallography, Birkbeck College.

The material covered in this book in comprehensive and explained in good detail. I am very happy to have purchased and read through much of this book. The reading is not as much fun as reading a biology book and I had the benefit of being pushed to do the reading in the form of reading assignments in class. I am thankful to have been pushed to do this reading as the information content of the book is excellent. But had I not been motivated by class assignments, I would have read much slower and covered much less material. I am thankful to to have learned what I have learned from this book. It was all new to me. Excellent book. A little bit of a tough read.

This book covers simple topics such as basic biology and sequence alignment to more complicated topics such as hidden markov models and prediction algorithms. Overall, a great book for teaching or as a reference.

It’s clear and starts from conceptual issues using real exercises. I did not understand the principles

of bioinformatics but now I understand many things!

Book is great for anyone that wants to get an understanding of bioinformatics. It is also useful for expert bioinformaticians.

This was a very dense book, but had some good information. I bought this for a college class, and I cannot imagine anyone reading this simply for fun.

Excellent book if you are interested in bioinformatics.goes over the fundamentals and into depth of how gene processing was originally done and how newer databases expand on old methods

The topics covered in this book have been of great benefit to me in my Graduate studies in bioinformatics. The layout and presentation of material is clear and concise and delves into detail where necessary. I'm not a big user of mind-mapping, but the topic maps that precede each chapter allowed me to quickly tie together key concepts and my courses covering the material have allowed me to rely on this book as a supplmental reference where necessary to help me with material I needed further expansion on.I found the coverage of phylogeny and tree construction to be of great benefit and I regularly use this book as a go to reference at work when I need to recall or review a topic.If you are bioinformatician or a computer scientist who needs a good reference for the key concepts applied to everyday bioinformatics, or just an individual interested in learning about bioinformatics concepts, this is a good book for learning bioinformatics theory.

They have done good job with figures but the text is too dry and one tend to loose interest overtime. This book will introduce you to the problems that Bioinformaticians deal with but don't expect to get any hands on skills. There are better books like 'Bioinformatics Data Skills' by Vince Buffalo for that purpose. In fact those practical skills are so important that I would suggest you read that book before you consider to buy this one. Hoping there will be a newer edition to this as things are moving very fast in this field.

Approach An Introduction to Bioinformatics Algorithms (Computational Molecular Biology) Bioinformatics Data Skills: Reproducible and Robust Research with Open Source Tools Python For Bioinformatics (Series in Biomedical Informatics) Bioinformatics: Sequence and Genome Analysis Granular Neural Networks, Pattern Recognition and Bioinformatics (Studies in Computational Intelligence) Bioinformatics: A Practical Guide To The Analysis Of Genes And Proteins, 3Rd Ed Beginning Perl for Bioinformatics Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins Algorithms in Bioinformatics: A Practical Introduction (Chapman & Hall/CRC Mathematical and Computational Biology) Structural Bioinformatics Introduction to Bioinformatics Bioinformatics for Beginners: Genes, Genomes, Molecular Evolution, Databases and Analytical Tools Exploring Bioinformatics: A Project-Based Approach