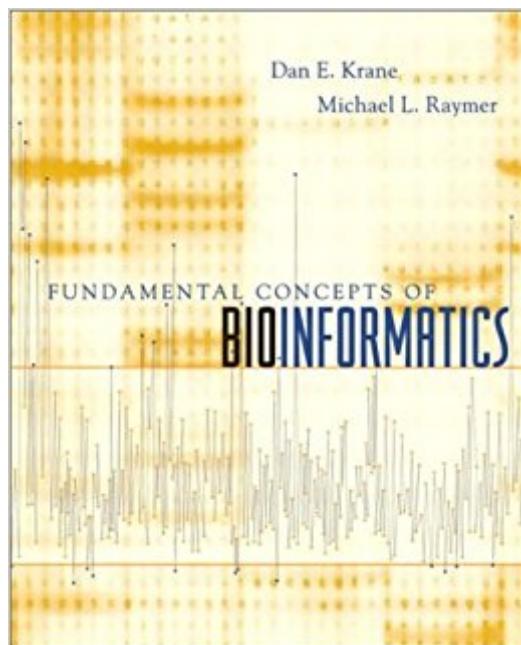


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# Fundamental Concepts Of Bioinformatics



## **Synopsis**

Fundamental Concepts of Bioinformatics is the first book co-authored by a biologist and computer scientist that is specifically designed to make bioinformatics accessible and provide readers for more advanced work. Readers learn what programs are available for analyzing data, how to understand the basic algorithms that underlie these programs, what bioinformatic research is like, and other basic concepts. Information flows easily from one topic to the next, with enough detail to support the major concepts without overwhelming readers. Problems at the end of each chapter use real data to help readers apply what they have learned so they know how to critically evaluate results from both a statistical and biological point of view.

## **Book Information**

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## **Customer Reviews**

"Fundamental Concepts of Bioinformatics" is the first book co-authored by a biologist and computer scientist that is specifically designed to make bioinformatics accessible and provide readers for more advanced work. Readers learn what programs are available for analyzing data, how to understand the basic algorithms that underlie these programs, what bioinformatic research is like, and other basic concepts. Information flows easily from one topic to the next, with enough detail to support the major concepts without overwhelming readers. Problems at the end of each chapter use real data to help readers apply what they have learned so they know how to critically evaluate results from both a statistical and biological point of view.

For Elaine N. Marieb, taking the student's perspective into account has always been an integral part of her teaching style. Dr. Marieb began her teaching career at Springfield College, where she taught anatomy and physiology to physical education majors. She then joined the faculty of the Biological Science Division of Holyoke Community College in 1969 after receiving her Ph.D. in zoology from the University of Massachusetts at Amherst. While teaching at Holyoke Community College, where many of her students were pursuing nursing degrees, she developed a desire to better understand the relationship between the scientific study of the human body and the clinical aspects of the nursing practice. To that end, while continuing to teach full time, Dr. Marieb pursued her nursing education, which culminated in a Master of Science degree with a clinical specialization in gerontology from the University of Massachusetts. It is this experience, along with stories from the field-including those of former students, now in health careers-that has informed the development of the unique perspective and accessibility for which her texts and laboratory manuals are known. In her ongoing commitment to students and her realization of the challenges they face, Dr. Marieb has given generously to provide opportunities for students to further their education. She contributes to the New Directions, New Careers Program at Holyoke Community College by providing several full-tuition scholarships each year for women returning to college after a hiatus or who are attending college for the first time and would otherwise be unable to continue with their studies without financial support. She funds the E. N. Marieb Science Research Awards at Mount Holyoke College, which promotes research by undergraduate science majors, and generously contributed to the University of Massachusetts at Amherst where she provided funding for reconstruction and instrumentation of a cutting-edge cytology research laboratory that bears her name. In 1994, Dr. Marieb received the Benefactor Award from the National Council for Resource Development, American Association of Community Colleges, which recognizes her ongoing sponsorship of student scholarships, faculty teaching awards, and other academic contributions to Holyoke Community College. In May 2000, the science building at Holyoke Community College was named in her honor. Additionally, while actively engaged as an author, Dr. Marieb serves as a consultant for the Benjamin Cummings "InterActive Physiology™" CD-ROM series, and is an active member of the Human Anatomy and Physiology Society (HAPS). "Anatomy & Physiology," Second Edition is the latest expression of her commitment to student needs in their pursuit of the study of A&P.

This product came in really fast, and it was new. I love this book. Only those in biotechnology would appreciate this textbook.

I paid 141 \$ to received a photo-copied version of the book with all - of course- black and white figures and graphs! I am from Egypt, and returning the book is a major hassle so I've just accepted my loss..I was really shocked when I received the book, and it made me think many times before buying any books again in fear of this happening again.This was really disappointing.

FeaturesFirst bioinformatics primer for undergraduates. Personable writing style and numerous analogies make this text accessible to undergraduates.Focus on fundamentally important algorithms at the core of bioinformatics.Easy-to-do "paper and pencil" calculations make fundamental algorithms unintimidating for biology students and accessible to students with limited experience in computer programming.Combined expertise (biology and computer science) of author team ensures an integrated approach and an appreciation for the biology and computer science tools and perspectives.End-of-Chapter summaries tie together key concepts and provide real-world examples of the algorithms presented.Detailed solutions to selected text questions are provided in the back of the text so students can check their answers.Annotated Reading Material sections at the end of each chapter direct students to additional resources for further explanation.Questions and problems at the end of each chapter help students apply their understanding of the material.ContentsMOLECULAR BIOLOGY AND BIOLOGICAL CHEMISTRY.DATA SEARCHES AND PAIRWISE ALIGNMENTS.SUBSTITUTION PATTERNS.DISTANCE-BASED METHODS OF PHYLOGENETICS.CHARACTER-BASED APPROACHES TO PHYLOGENETICS.GENOMICS AND GENE RECOGNITION.PROTEIN FOLDING.PROTEOMICS.

Bioinformatics is a burgeoning interdisciplinary field that holds great promise in handling large scale biomedical data by computational approaches. The book "Fundamental Concepts of Bioinformatics" is a very important textbook and reference book for both biology and computer science students and researchers, as well as for those professionals in medical science, and the pharmaceutical industry. It goes with saying that many laboratory approaches are expensive and time consuming, and cannot hope to keep up with the rapid growth of available data, making computational approaches indispensable. While a number of books dealing with bioinformatics, most of them are generally limited in scope, and very few of them provide a comprehensive but easy understandable treatment from both computer science and biomedical principles. This book is unique and is well-organized, and provides a systematic but straightforward treatment of the various techniques used for bioinformatics. One of the attractive features of the book is the comprehensive coverage of the various types of data use in bioinformatics analysis, followed by computational approaches that

are most suited to the particular data type. This book also helps researchers entering bioinformatics. The reader can quickly identify the chapters that are most relevant to their own interest. It could also be used as a textbook for a senior undergraduate or a graduate level bioinformatics course. It is a valuable resource to both students and researchers, no matter whether they perform experimental research or computer science studies. Computer scientists, mathematicians, and statisticians seeking to discover how bioinformatics is related to well-defined paradigms in computer science could also benefit greatly from this book. Professors Michael L. Raymer and Dan E. Krane have authored many research articles in both computer science and biological science. I highly recommend this book as a great textbook and reference book for both students and researchers.

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