



Exploring Bioinformatics: A Project-Based Approach

By Caroline St. Clair, Jonathan E. Visick



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Thoroughly revised and updated, *Exploring Bioinformatics: A Project-Based Approach, Second Edition* is intended for an introductory course in bioinformatics at the undergraduate level. Through hands-on projects, students are introduced to current biological problems and then explore and develop bioinformatic solutions to these issues. Each chapter presents a key problem, provides basic biological concepts, introduces computational techniques to address the problem, and guides students through the use of existing web-based tools and software solutions. This progression prepares students to tackle the On-Your-Own Project, where they develop their own software solutions. Topics such as antibiotic resistance, genetic disease, and genome sequencing provide context and relevance to capture student interest. With a focus on developing students' problem-solving skills, the Second Edition of *Exploring Bioinformatics: A Project-Based Approach* is a contemporary and comprehensive introduction to this rapidly growing field. New to the thoroughly updated Second Edition:

- Offers a flexible approach to understanding key bioinformatics algorithms with exercises that can be used with or without programming.
- For programming courses, pseudocode allows students to implement algorithms in any desired programming language.
- Includes more substantive web-based projects for a more comprehensive, hands-on introduction to bioinformatics in non-programming courses.
- Contains updated material reflecting changes in how bioinformatics is used: next-generation sequencing, metagenomic analysis, statistical methods, etc.
- Contains more instructive and relevant case studies as well as more cohesive connections between the case studies and the exercises.



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