

INTEGRATED MOLECULAR EVOLUTION

Molecular evolution, phylogenetics, genomics, and other related topics are all critical to understanding evolutionary processes. All too frequently, however, they are treated separately in textbooks and courses, such that students fail to connect all of the concepts, principles, and nuances of the evolutionary processes. *Integrated Molecular Evolution* brings these related areas together in one volume, facilitating student comprehension of often difficult concepts.

Incorporating the emerging fields of genomics and bioinformatics with traditional fields such as evolution, genetics, and molecular biology, this volume explores myriad topics, including

- Life on Earth and the possible origins of life
- The evolution of organisms on Earth and the history of the study of evolution
- Basic structures of DNA, RNA, proteins, and other biological molecules, and the synthesis of each
- Molecular biology and the evolution, structure, and function of ribosomes
- DNA replication and the various ways in which chromosomes are separated
- Ways in which DNA can be changed to produce mutations, infectious causes of mutation, and repair of DNA
- Definitions, evolution, and the importance of multigene families
- Phylogenetic analysis and how researchers use the raw sequence data to reconstruct portions of evolutionary processes
- Details of the genomes of a variety of organisms, from RNA viruses to eukaryotes, presented in order of complexity

Each chapter ends with a summary of key points, forming an effective review and enabling students to isolate critical material. The series of topics and the masterful integration of these topics lead students to a full understanding of evolution and the component processes that have led to biological evolution on Earth.

K11052



CRC Press
Taylor & Francis Group
an **informa** business
www.crcpress.com

6000 Broken Sound Parkway, NW
Suite 300, Boca Raton, FL 33487
711 Third Avenue
New York, NY 10017
2 Park Square, Milton Park
Abingdon, Oxon OX14 4RN, UK

ISBN: 978-1-4398-1995-1



9 781439 819951

www.crcpress.com