

Advanced Genetic Analysis

Genes, Genomes, and Networks in Eukaryotes

Philip Meneely, Haverford College, USA

With its unique integration of genetics and molecular biology, *Advanced Genetic Analysis* provides a broad survey of how our understanding of key genetic phenomena can be used to understand biological systems.

Drawing on the latest experimental tools, including microarrays, RNAi, and bioinformatics approaches, *Advanced Genetic Analysis* provides a state-of-the-art

review of the field, but in a truly student-friendly manner. It uses extended case studies and text boxes to augment the narrative, taking the reader right to the forefront of contemporary research without losing clarity of explanation and insight.

CONTENTS

UNIT 1: GENES AND GENOMES; The logic of genetic analysis; Model organisms and their genomes; **UNIT 2: GENES AND MUTANTS;** Identifying mutants; Classifying mutants; Connecting a phenotype to a DNA sequence; Finding mutant phenotypes for cloned genes; Genome-wide mutant screens; **UNIT 3: GENE ACTIVITY;** Molecular analysis of gene expression; Analysis of gene activity using mutants; **UNIT 4: GENE INTERACTIONS;** Using one gene to find more genes; Epistasis and genetic pathways; Pathways, networks, and systems

Readership: Upper level undergraduates and beginning graduates following a range of bioscience related programmes of study.

576 pages 2009 978-0-19-921982-7 Paperback £36.99

“It is refreshing to see the focus move away from the detail of molecular mechanism towards understanding and scientific investigation
The Society for General Microbiology”

ONLINE RESOURCE CENTRE



For registered adopters of the book:

- Figures from the book in electronic format, ready to download
- Journal club: suggested papers and discussion questions linked to topics covered in the book

For students:

- Additional case studies to those in the book
- Additional text boxes - to enhance and expand coverage of this rapidly-changing field by introducing further model organisms, emerging topics not captured in the print book, and richer discussions of key themes
- Guided tours of key websites
- Key updates on topics or tools presented in the book

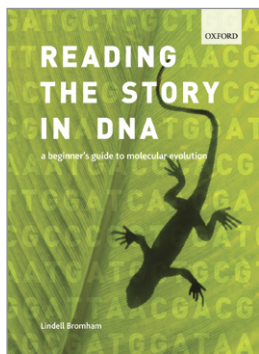
www.oxfordtextbooks.co.uk/orc/meneely/

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Molecular Biology

Craig *et al.*

A new approach to molecular biology for the twenty first century.



Reading the Story in DNA

A beginner's guide to molecular evolution

Lindell Bromham, The Australian National University

Reading the story in DNA is a beginner's guide to molecular evolution, and is the perfect companion on the journey to a proper understanding of molecular data. The central theme of the book is that in order to get ecological or evolutionary information out of molecular data, you must understand the way that the molecular data evolves and the influence that the assumptions you make have on the answers you get.

CONTENTS

The Story in DNA: what kind of information can I get from DNA?; The Immortal Germline: how do I get DNA samples?; We are all Mutants: how do I identify individuals?; Endless Copies: how do I amplify DNA?; Descent with Modification: how do I detect selection?; Origin of Species: how do I align sequences?; Tree of Life: how do I construct a phylogeny?; Tempo and Mode: how do I estimate molecular dates?; You are a scientist: what do I do now?

Readership: Entry-level biology undergraduates requiring an understanding of the use of molecular data in whole organism biology. Also a valuable primer for postgraduates and researchers who are making use of molecular data in biology for the first time. The text may also be of use to mathematicians and computer programmers working with biological data for the first time.

384 pages 2008 978-0-19-929091-8 Paperback £27.99

“This is a thoroughly engaging beginners textbook on molecular evolution. Bromham's use of modern, colorful examples rather than equations will capture both the attention and the imagination of readers, providing a clear and thorough introduction into a highly sophisticated field without requiring advanced mathematical knowledge.
The Quarterly Review of Biology”

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For registered adopters of the book:

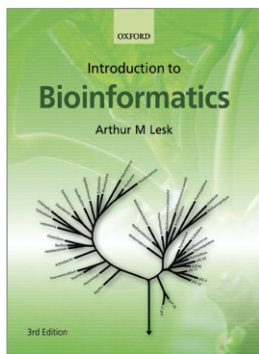
- Figures from the book in electronic format
- Tutorial exercises and practical projects

For students:

- Annotated weblinks
- Flashcard glossary

www.oxfordtextbooks.co.uk/orc/bromham/





Introduction to Bioinformatics

Third Edition

Arthur Lesk, *The Pennsylvania State University, USA.*

An Introduction to Bioinformatics introduces students to the immense power of bioinformatics as a set of scientific tools. The book explains how to access the data archives of genomes and proteins, and the kinds of questions these data and tools can answer: how to make inferences from the data archives, to make connections among them, and to derive useful and interesting predictions.

Blending factual content with many opportunities for active learning, *Introduction to Bioinformatics* offers a truly reader-friendly way to get to grips with this subject, making it the ideal resource for anyone new to the field.

CONTENTS

Introduction; Genome organization and evolution; Scientific publications and archives: media, content and access; Archives and information retrieval; Alignments and phylogenetic trees; Structural bioinformatics and drug discovery; Proteomics and systems biology

Readership: Second and final year bioscience undergraduates, and those beginning an MSc in this field.

496 pages 2008 978-0-19-920804-3 Paperback £27.99

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- Electronic versions of the tables in the book

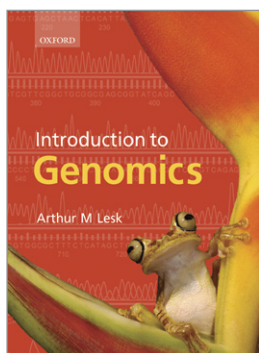
For registered adopters of the book:

- Figures from the book available to download, to facilitate lecture slide preparation

For students:

- Hyperlinked bibliography
- Data from the book in computer-readable form
- Guidance to help students answer problems from the text

www.oxfordtextbooks.co.uk/orc/leskbioinf3e/



Introduction to Genomics

Arthur Lesk, *The Pennsylvania State University, USA*

Introduction to Genomics is a fascinating insight into what can be revealed from the study of genomes: how organisms differ or match; how different organisms evolved; how the genome is constructed and how it operates; and what our understanding of genomics means in terms of our future health and wellbeing.

Covering the latest techniques that enable us to study the genome in ever-increasing detail, the book explores what the genome tells us about life at the level of the molecule, the cell, the organism, the ecosystem and the biosphere.



This is an extraordinarily well-written book on genomics and related areas such as proteomics and systems biology. It is remarkable in its coverage of a very complex area.

The Internet Journal of Genomics and Proteomics



CONTENTS

Introduction to Genomics; Comparative Genomics; Evolution and Genomic Change; Mapping, sequencing, annotation and databases; Microarrays; Proteomics; Systems Biology

Readership: Intermediate and advanced biology, biomolecular science, and biochemistry undergraduates. Also of interest to postgraduate students requiring a primer on this subject

440 pages 2007 978-0-19-929695-8 Paperback £27.99

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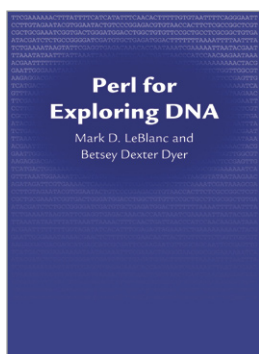
For registered adopters of the book:

- Figures from the book available in electronic format to download

For students:

- Figures from the book available to download
- Answers to odd-numbered end of chapter exercises, and hints for solving end of chapter problems
- Library of web links

www.oxfordtextbooks.co.uk/orc/leskgenomics/



Perl for Exploring DNA

Mark D. LeBlanc, *Wheaton College, Massachusetts*, and Betsy Dexter Dyer, *Wheaton College, Massachusetts*

This book provides an exceptionally friendly introduction to Perl that emphasizes good programming practices with repeated exposure to pattern matching as applied to biological sequence analysis (DNA analysis, protein analysis). It is appropriate for majors in either computer science or biology and especially for those taking new interdisciplinary courses.

Readership: Biologists, biochemists, and others who are anxious to begin DNA sequence analysis but need a rigorous but appropriately placed introduction to programming and Perl.

288 pages 2007 978-0-19-530589-0 Paperback £22.50

