Introduction to Glycobiology

NEW EDITION

Third Edition

Maureen E. Taylor and Kurt Drickamer, both of Imperial College London

- The only text to make this important area of biochemistry accessible to an undergraduate audience.

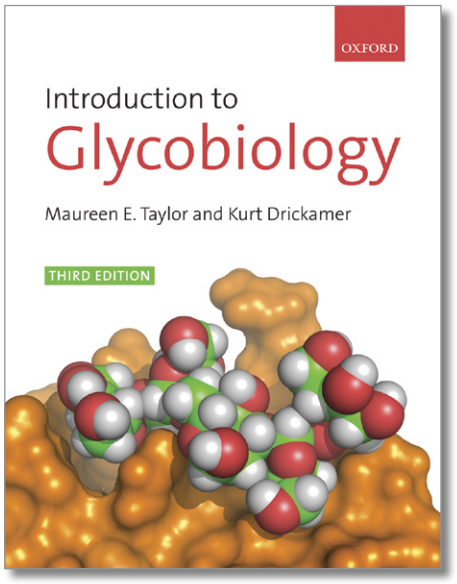
New to this edition

- Updated content to reflect the current state of the field: new chapter on cell biology of glycosylation; expanded coverage of congenital disorders, proteoglycans, influenza virus, muscular dystrophy, and cancer.
- New and updated special topic boxes represent the current research and applications of glycobiology to disease and therapeutics.
- Broadened treatment of analytical methods, including glycoarrays, provides an overview of the cutting edge techniques used to increase our understanding.

Introduction to Glycobiology reveals the true impact of the sugars on biological systems, explaining their function at the molecular, cellular, and organismal level. Employing a two-part structure, the book leads us through essential principles and concepts upon which the discipline is grounded, before exploring the diverse roles of sugars throughout biological systems, including development, cell signalling, and protein trafficking. It also emphasises the importance of glycobiology in disease, and explains how an understanding of the link between the two is enabling us to develop new therapeutic strategies.

Readership: Undergraduate and postgraduate biochemistry and biosciences students studying glycobiology. Also suitable for further reading on general biological sciences, biochemistry, cell biology, and immunology courses. The book is likely to be of wide interest to graduate students not necessarily taking a course in the subject as well as postdoctoral researchers and faculty members who want an introduction to this important interdisciplinary field.

320 pages April 2011 978-0-19-956911-3 Paperback £29.99

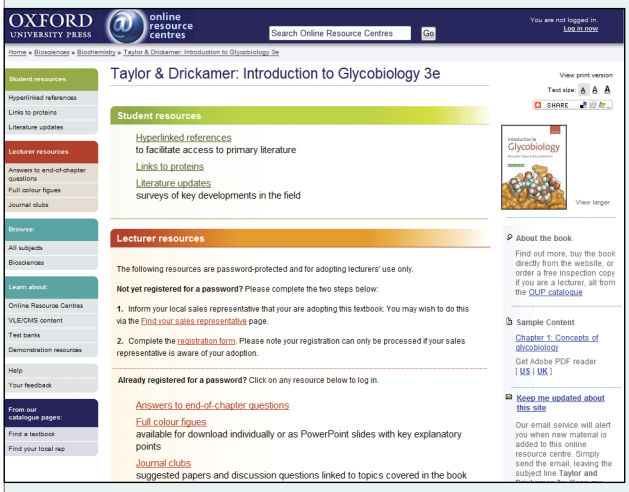


Review from previous edition

This book is an absolute must for all lecturers and students alike of glycobiology ... Wholeheartedly recommended.

Microbiology Today, November 2006

ONLINE RESOURCE CENTRE



For registered adopters of the book:

- Full colour figures, available for download individually or as PowerPoint slides with key explanatory points
- Answers to end of chapter questions
- Journal Clubs

For students:

- A library of three-dimensional interactive versions of key biological structures featured in the book
- Surveys of key developments in the field, provided on a six-monthly basis, to maintain currency
- Library of molecular structures to help students visualize structures and gain a proper appreciation of the link between structure and function.
- Hyperlinked references to facilitate access to primary literature.

www.oxfordtextbooks.co.uk/orc/taylor3e/

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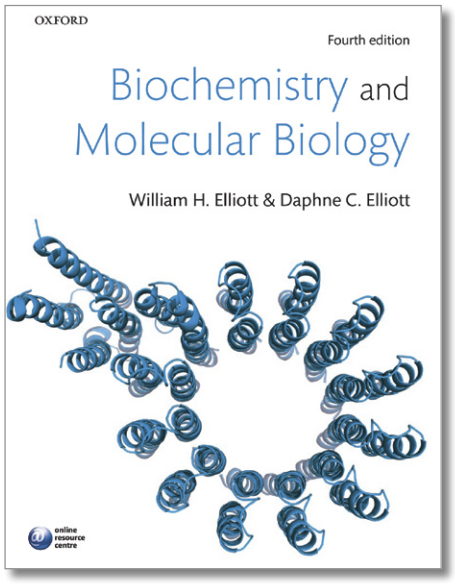


Biochemistry and Molecular Biology

Fourth Edition

***William H. Elliott** University of Adelaide and **Daphne C. Elliott**, Flinders University*

Biochemistry and Molecular Biology is the perfect resource for any student without previous experience in the subject who needs to know its key principles and concepts - whether they are studying biology or biochemistry, biomedical science or nutrition.

The book blends the fundamentals of molecular biology and biochemistry with the latest technological advances, including mass spectrometry, RNA interference, X-ray synchrotron radiation, the medical applications of single nucleotide polymorphisms, the development of pluripotent cells with stem cell potential, and the use of protein and DNA databases and their application to the study of disease-causing genes.

CONTENTS

PART1: BASIC CONCEPTS OF LIFE; The basic molecular themes of life; Cells and viruses; Energy considerations in biochemistry; **PART 2: STRUCTURE AND FUNCTION OF PROTEINS AND MEMBRANES;** The structure of proteins; Methods in protein investigation; Enzymes; The cell membrane and membrane proteins; Muscle contraction, the cytoskeleton, and molecular motors; **PART 3: METABOLISM;** Food digestion, absorption, distribution to the tissues and appetite control; Mechanisms of transport, storage and mobilisation of dietary components; Principles of energy release from food; Glycolysis, the citric acid cycle, and the electron transport system; Energy release from fat; The synthesis of fat and related compounds; Synthesis of glucose (gluconeogenesis); Strategies for metabolic control and their applications to carbohydrate and fat metabolism; Why should there be an alternative pathway of glucose oxidation? The pentose phosphate pathway; Raising electrons of water back up the energy scale - photosynthesis; Amino acid metabolism; Nucleotide synthesis and metabolism; **PART 4: INFORMATION STORAGE AND UTILISATION;** The genome; DNA synthesis, repair and recombination; Gene transcription and control; Protein synthesis and controlled protein breakdown; The RNA world - RNA microgenes and RNA interference; Protein sorting and delivery; Cell signalling; Manipulating DNA and genes; **PART 5: MOLECULAR BIOLOGY IN HEALTH AND DISEASE;** Special topics: blood clotting, xenobiotic metabolism, reactive oxygen species; The immune system; The cell cycle and its control; Apoptosis; Cancer

608 pages 2009 978-0-19-922671-9 Paperback £31.99

> This is a well-written, accessible book, which should appeal to students during their first major encounter with biochemistry and molecular biology. Throughout the book, reference is made to health, disease and treatment, which should make the text more relevant and interesting to undergraduate students, especially those on medically-related courses.
>
> **Dr Caroline Owen, Kingston University**

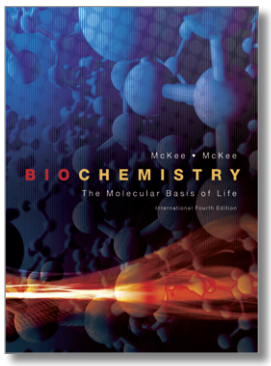
Readership: Undergraduate students taking a course in biochemistry and molecular biology as part of any science or bioscience-related degree programme, including biology, biochemistry, and biomedical science. Also of value to those studying medicine and health science programmes, without previous experience in the subject.

ONLINE RESOURCE CENTRE

For registered adopters of the book:
- Figures from the book available to download
- A new test bank of questions, with feedback keyed to the book, for use in formative and summative assessment

For students:
- A library of weblinks cited in the text
- A hyperlinked bibliography of literature articles cited in the text
- An extensive bank of multiple-choice questions for self-directed learning
- A library of three-dimensional interactive versions of key biological structures featured in the book.

www.oxfordtextbooks.co.uk/orc/elliott_elliott4e/



Biochemistry

The Molecular Basis of Life, International edition

Fourth Edition

Trudy McKee** and **James R. McKee

Biochemistry: The Molecular Basis of Life, provides a complete overview of the living state by explaining the functional and structural properties of biomolecules in the context of their biochemical reactions and impact on living organisms. It also places strong emphasis on critical thinking to help students diagnose real biochemical problems, and integrates fascinating applications of biochemistry in fields of health, agriculture, engineering, and forensics in order to relate concept to experience and show students the relevance of their learning to their future careers.

CONTENTS

Biochemistry: an introduction; Living Cells; Water: the medium of life; Energy; Amino acids, peptides and proteins; Enzymes; Carbohydrates; Carbohydrate metabolism; Aerobic metabolism I: the citric acid cycle; Aerobic metabolism II: electron transport and oxidative phosphorylation; Lipids and membranes; Lipid metabolism; Photosynthesis; Nitrogen metabolism I: synthesis; Nitrogen metabolism II: degradation; Integration of metabolism; Nucleic acids; Genetic information; Protein synthesis

Readership: Non-biochemistry undergraduates who require a strong grasp of essential biochemical principles.

791 pages 2009 978-0-19-538469-7 Paperback £39.99

> A very useful text book [that] covers all the fundamental aspects of a modern crystallography course in a way that will appeal to undergraduates.
>
> **Professor Paul R. Raithby, University of Bath**

ONLINE RESOURCE CENTRE

For registered adopters of the book:
- Figures from the book in electronic format, ready to download
- PowerPoint slide sets for each chapter

For students:
- A library of annotated web links
- Datasets related to topics discussed in the book

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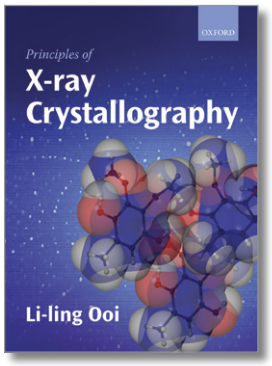
Principles of X-ray Crystallography



***Li-ling Ooi**, Formerly of Cardiff University*

- The ideal primer for anyone new to the technique.
- Emphasis on active learning draws upon self-test tutorial-style exercises and hands-on activities, and the coupling of clear text and illustrations, to motivate and engage the reader.
- Avoids excessive mathematical detail, focusing instead on the key concepts to recognize the mathematical processing now performed by computer.
- Encompasses aspects of both small molecule and macromolecular crystallography, highlighting the similarities and differences between the two.

Principles of X-ray Crystallography provides a clear, succinct guide to the three-dimensional world of molecules, which is perfect for anyone encountering the technique for the first time. Using a direct and simple writing voice, and enriching the text with real examples, diagrams, exercises, and activities, it seeks to engage the reader in the challenge of visualizing three-dimensional structures, rather than daunting them with excessive theoretical detail.

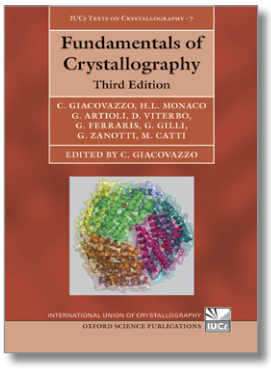
CONTENTS

An Introduction to the Method; The Crystal Construct; Symmetry Elements; Space Groups; Systematic Absences in Crystal Data; Structure Solution; Refining Crystal Data; The Crystallographic Experiment; Publishing Crystal Data

Readership: Undergraduates on chemistry and related degree programmes. Also a valuable primer for postgraduates who are being exposed to the technique for the first time.

176 pages 2009 978-0-19-956904-5 Paperback £21.99

Fundamentals of Crystallography



Third Edition

***Carmelo Giacovazzo**, University of Bari, Italy, **Hugo Luis Monaco**, University of Verona, Italy, **Gilberto Artioli**, University of Padova, Italy, **Davide Viterbo**, University del Piemonte Orientale, 'A. Avogadro', Italy, **Marco Milanesio**, University del Piemonte Orientale, 'A. Avogadro', Italy, **Gastone Gilli**, University of Ferrara, Italy, **Paola Gilli**, University of Ferrara, Italy, **Giuseppe Zanotti**, University of Padova, Italy, **Giovanni Ferraris**, University of Torino, Italy, and **Michele Catti**, University of Milano Bicocca, Italy*

The book describes both the theoretical bases and applications of different areas interacting with crystallography. To facilitate learning and make teaching more effective, new illustrations have been introduced. A compact disc is included with the book: modern graphics will help users to better understand the basics of this science via three-dimensional images, simulation of experiments, and exercises.

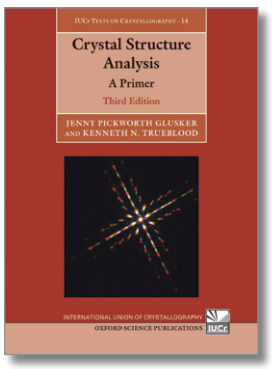
International Union of Crystallography Texts on Crystallography No. 15

Readership: Undergraduate, graduate, PhD and post-doctoral students in physics and chemistry, and any discipline involving crystallography: biology, Earth sciences, mathematics and materials science. Professional crystallographers, as well as mathematicians, chemists, physicists, and biologists operating in fields which need the support of crystallography.

848 pages February 2011 978-0-19-957366-0 Paperback £45.00

Crystal Structure Analysis

A Primer



Third Edition

***Jenny Pickworth Glusker**, Fox Chase Cancer Centre and University of Pennsylvania, Philadelphia, USA, and **Kenneth N. Trueblood**, University of California, USA*

Crystal Structure Analysis aims to explain how and why the detailed three-dimensional architecture of molecules can be determined by an analysis of the diffraction patterns obtained when X rays or neutrons are scattered by the atoms in single crystals.

Readership: Students starting X-ray or neutron diffraction studies; universities and summer schools teaching crystallography, chemistry and biochemistry.

International Union of Crystallography Texts on Crystallography No. 14

304 pages 2010 978-0-19-957635-7 Paperback £27.50