Student book reviews

The importance of knowing left from right

Hands up for chiral chemistry

Chirality in transition metal chemistry: molecules, supramolecular assemblies and materials
H Amouri and M Gruselle
Chichester, UK: Wiley-Blackwell
2008 | 260 pp | £37.50 (SB)
ISBN 9780470060544
Reviewed by Dai Davies

This book starts with a detailed introduction to chirality and enantiomers and the nomenclature associated with chirality. However, readers should ideally already be familiar with chiral carbon atoms and the more simple aspects of inorganic chirality, for example enantiomers of $[M(bipy)_3]^{n+}$ complexes.

This section is followed by a chapter on chiral organometallic compounds and asymmetric catalysis which is necessarily a very brief overview of this topic and if this is your main interest, more specialist books in this area will be more appropriate.

The second half of the book considers chiral recognition, supramolecular coordination compounds, and enantiopure molecular materials and it is in these areas that the book is most useful. These topics are well covered, in particular showing how the field is progressing to more rational approaches to the design of enantiopure supramolecular compounds and materials.

The book is well-referenced to the primary literature throughout and serves as a good review of these areas but with explanations provided for the less well-established worker in the field. Throughout, a clear differentiation is made between the use of enantiopure materials and racemates, and where appropriate, discussion of the stability of the chiral information.

Overall this book will be useful to students taking an advanced undergraduate course and particularly to postgraduates and academics undertaking research in the areas of chiral inorganic supramolecular complexes and materials.

'This will become the bible for those who wish to master the concepts of asymmetric catalysis'

Fundamentals of asymmetric catalysis
P J Walsh and M C Kozlowski
Herndon, US: University Science Books
2008 | 688pp | £52.99 (HB)
ISBN 9781891389542
Reviewed by Dai Davies

My advice to anyone reading this book that is not already experienced in the field would be to start with the appendix, itself over 50 pages long, on terms and enantioselective processes in asymmetric catalysis. Indeed, even though I thought I understood the field reasonably well, I learnt some new things just from the appendix.

The book is organised differently to most books on asymmetric catalysis in that the chapters are arranged by concepts rather than by reaction type. While this sometimes leads to the same reaction being discussed in more than one place, I found it gave me an overview and perspective of asymmetric catalysis which I had not found from any other text.

The book deals with Lewis acid, Lewis base, metal-based catalysis and organic catalysis with detailed discussions of reaction mechanisms including kinetic analyses and energy diagrams in many cases.

There are chapters on various types of kinetic resolution and on how stereochemical information is transferred from the catalyst to the substrates. The authors emphasise that while there have been significant achievements in asymmetric catalysis there is much left to do.

The book will no doubt provide inspiration for further work while making it clear that understanding the mechanisms and origin of

Classic kit
Thiele tube, p72

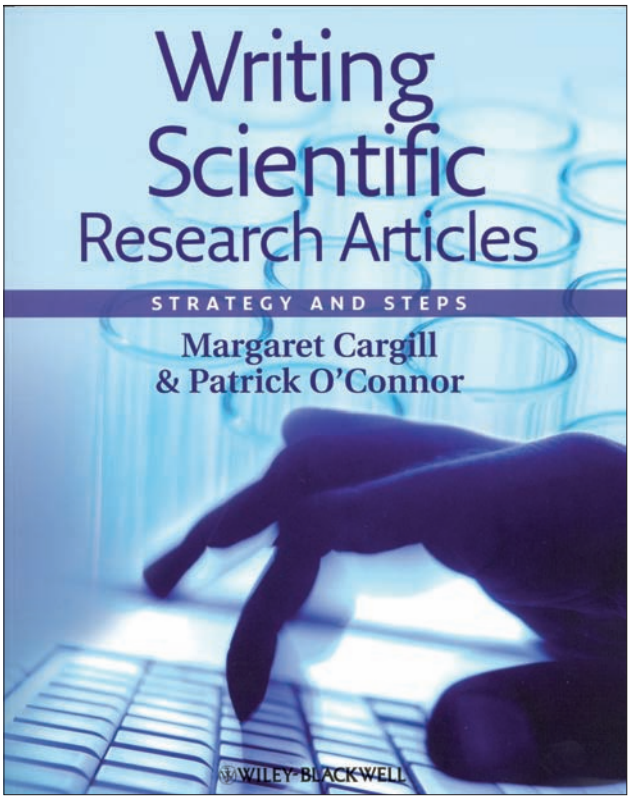
Last retort
Car catastrophe, p84

enantioselectivity in asymmetric catalysis is a very challenging field.

Overall this book will be useful, though perhaps somewhat daunting, to students taking an advanced undergraduate course. However, for postgraduates and academics undertaking research in asymmetric catalysis this should be essential reading before starting research. I concur wholeheartedly with the foreword which suggests that it will become the bible for those who wish to master the concepts underpinning research advances in asymmetric catalysis. It is also very good value.

Writing up your research

Writing scientific research articles: strategy and steps
Margaret Cargill and Patrick O'Connor
Chichester, UK: Wiley-Blackwell
2009 | 184pp | £17.99 (SB)
ISBN 9781405186193
Reviewed by David Parker



How you present your research is key to whether it gets published

As both an author and copy editor of scientific articles, I know well the challenges and pitfalls of writing up research for publication in the international literature.

Written by a science educator and a linguist, this book aims to mentor early-career researchers through the difficult crucial steps of knowing how to write, what to write and where to aim for publication, reminding the reader that though the quality of their research is key, how it is presented for publication will ultimately decide whether it is accepted and so gain the kudos it deserves.

The book breaks down the writing process into a series of key concepts, from understanding the publishing process and the reasons for doing so, to explaining the purpose and best practice structuring of an article's various sections, through to the important issues of language use and the avoidance of plagiarism.

Depending on how a writer intends to use the book, there are exercises (with answers) at the end of each section, the scope to learn as you write your own article, complete example articles to refer to, and the support of a dedicated website.

Some of the authors' advice may seem like common sense to some, but nevertheless it is sometimes valuable to have the underlying reasoning reiterated to keep writers focused on their goal of successful publication. Even for a more seasoned writer, the very well laid out and accessible style of the book offers a dip-in reminder of aspects of good scientific writing practice.

'A research article is never better than the quality of the data'

As always, a research article is never better than the quality of the data and scientific rigour that underpins it, a principle that no generalised training material, such as this book, can reasonably hope to impart. That said, I found that there was enough genuinely useful guidance, which can help writers develop their technique, for this book to be a worthy companion on any new researcher's desk.

Physical meets biological

Modern biophysical chemistry: Detection and analysis of biomolecules
Peter Jomo Walla
Weinheim, Germany: Wiley-VCH
2009 | 301pp | £39.95 (SB)
ISBN 9783527323609
Reviewed by Alan Cooper

The interface where physical chemistry meets molecular biology presents exciting challenges for both disciplines, and this new book gives a nice introduction to some current aspects.

Biophysical chemistry dates back at least to 1958 with the classic, now technically antique *Biophysical chemistry*, by Harvard chemists John Edsall and Jeffries Wyman.

Fifty years on, and we should expect to see significant advances, as indeed exemplified here. Taking advantage of recent developments, especially in optical and electronic technologies, often driven by the need for enhanced sensitivity and applicability to biomedical/pharmaceutical R&D, we now have a wide range of techniques for studying the structure and function of biological macromolecules and their detection at almost homoeopathic levels. Walla gives a thorough and authoritative account of the current situation, focusing almost entirely on spectroscopic methods.

The book is strong on the basics, with appropriate treatments of fundamental molecular spectroscopy leading on to more recent application in single-molecule manipulation and analysis. The author's research expertise in this area underpins a good selection of illustrative examples, with a nice range of problems accompanying each chapter (answers apparently to be available online – though not at time of writing).

But perhaps the choice of title is a little unfortunate. The coverage here is not quite as comprehensive as the title might suggest, omitting,

for example, any mention of widely used non-spectroscopic techniques such as microcalorimetry or analytical ultracentrifugation. And any 'modern' text is unlikely to remain so for very long, especially in such a rapidly developing field. However, these are minor quibbles, and I commend this book as a fine introduction for more physically oriented bioscientists or biologically inclined physical chemists at the senior undergraduate/graduate level, or beyond.

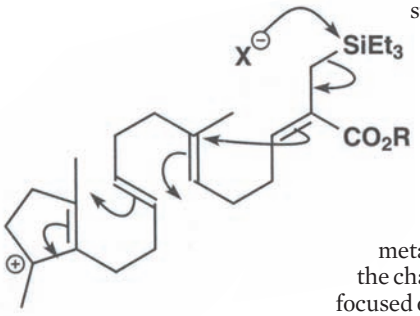
Reactions with arrows

Reaction mechanisms in organic synthesis

Rakesh K Parashar
Chichester, UK: Wiley-Blackwell
2008 | 392pp | £37.50 (SB)
ISBN 9781405190893
Reviewed by Guy Lloyd-Jones and his research group

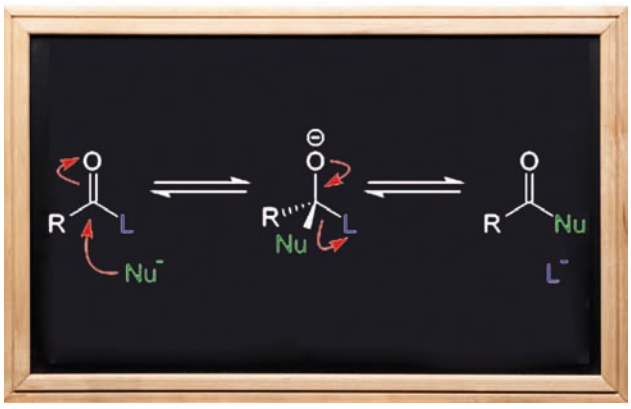
This book sets out to bridge the gap between the teaching lab and the research laboratory. Unfortunately, in most parts it does not. In many places there is insufficient mechanistic discussion, particularly on stereochemical aspects, so that the reader is left with only half the picture, sometimes less than found in undergraduate texts. There is also a rather sporadic level of referencing, some of which is not at all up to date, and in places there are rather poorly constructed mechanistic schemes, or reactions are mentioned without any discussion of the mechanism at all.

On the plus side, the breadth of material is good, it is well organised and the language appealingly simple. However, for a book that claims to stand out from the crowd by offering a 'comprehensive coverage of recently published research,' there are some alarming gaps. For example, there is no mention of alkene metathesis, even in the chapters specifically focused on 'C–C double bond forming reactions' and 'Transition metal mediated C–C bond forming reactions'; despite award of the Nobel Prize in this field in 2005.



'A book for the bus or the bath, rather than the bench'

In summary, this book does not bridge the gap it intends to; rather it falls down it. On one hand there are much more forgiving mechanistic primers available, and on the other there is insufficient detail and referencing to the literature for the work to be applied in research. A book for the bus or the bath, rather than the bench.



Curly arrows show the movement of electrons

Arrow-pushing in organic chemistry: An easy approach to understanding reaction mechanisms

Daniel Levy
Hoboken, New Jersey, US: Wiley
2008 | 302pp | £28.50 (SB)
ISBN 9780470171103
Reviewed by Mary Masson

From the blurb for this new text, I expected a student-friendly book that would be a real help to beginners trying to get to grips with writing curly arrow mechanisms, but sadly I was disappointed. There are several problems, the most serious one being the poor and often incorrect drawing of the actual curly arrows; the defect being that the arrow head does not point to the final destination of the electron pair. Other modern textbooks do a much better job (eg *Organic chemistry* by J Clayden *et al*).

The style of writing in the book is also a problem, in that it is dated and not appropriate to the current generation of students. The text often introduces outdated concepts in explanations, and it jumps around between topics and does not start at the beginning of anything. For example, the five-page section entitled *Definition of arrow pushing* starts by talking about some named reactions, goes through Lewis structures, lone pairs, cleavage reactions, concerted mechanisms and pericyclic reactions before it eventually reaches a definition in the last paragraph, and even then the definition is poor. Other definitions are suspect; for example consider: 'carbocations are positively charged carbon ions' (a much better definition from elsewhere is 'a carbocation is an ion in which a positive charge resides on a carbon atom'). Detailed explanations are given for simple points, but more difficult ones are skipped over.

The one good feature of the book is the collection of problems with solutions, and lecturers may like to make use of these.

In conclusion, I would most definitely not recommend this book to students – they might like to try *Pushing electrons* by Daniel Weeks instead.

Jump start thermodynamics

Introduction to molecular thermodynamics

Robert M Hanson and Susan Green
Herndon, US: University Science Books
2008 | 296pp | £23.99 (HB)
ISBN 9781891389498
Reviewed by Mark Miller

There are several reasons why first-year science undergraduates rarely rate thermodynamics as their favourite subject. Many find the mathematics daunting, but it can also be hard to grasp concepts like entropy and free energy when presented within the traditional framework of phenomenological thermodynamics.

Hanson and Green strive to bypass these problems first by restricting the level of mathematics to simple algebra with no calculus, and second by taking a molecular approach from the very start. Hence, explanations of thermodynamic quantities and processes are couched in terms of molecules distributed over energy levels. This explicitly chemical approach makes clear, for example, the microscopic meanings of work and heat, and provides a more accurate perception of entropy than the misleading 'measure of disorder'.

The book starts with an introduction to probability and then introduces internal energy, the First Law and thermodynamic cycles. Entropy and the Second Law enter

half-way through, leading to Gibbs energy and equilibria. Two chapters at the end briefly cover phase changes and electrochemistry.

The text is written in a very informal, chatty style, making it approachable and easy to read, though it is a little verbose at times. As the authors point out, the book is based on a course in which the majority of students will not continue with chemistry. Hence, although the book conveys immense enthusiasm, it is important to realise that it does not cover the subject at a sufficient level for many first-year thermodynamics courses in UK chemistry degree programmes. Nevertheless, it provides a coherent and refreshing introduction to the subject.

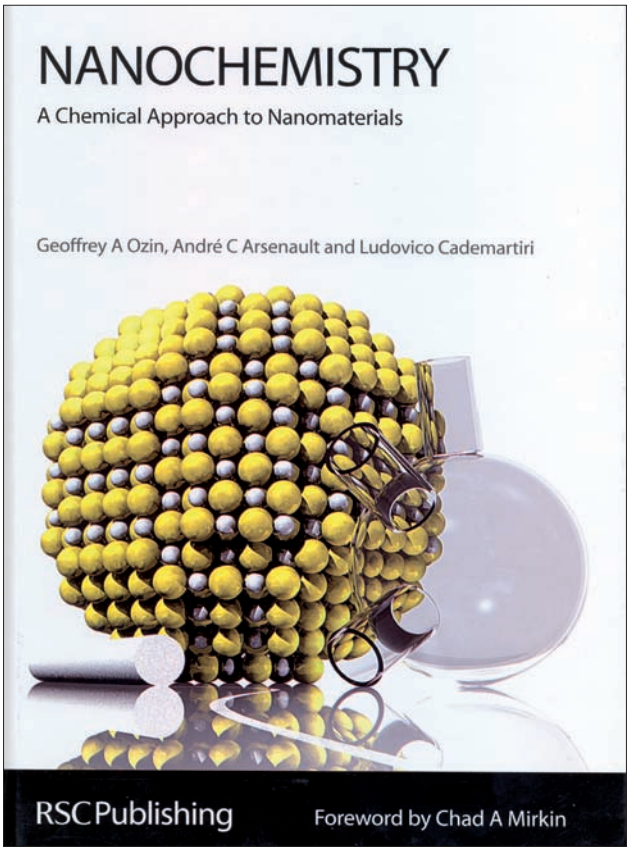
Welcome to the nanoworld

Nanochemistry: A chemical approach to nanomaterials
Geoffrey A Ozin, André Arsenault and Ludovico Cademartiri
Cambridge, UK: RSC Publishing
2009 | 820pp | £45.00
ISBN 9781847558954
Reviewed by Rafael Luque

This book is the second edition of a title, first published in 2005, in which the authors have already established a reputation for good writing and attractive presentation across the field of nanoscience.

Unsurprisingly, the book is perfectly balanced and contains many new chapters with detailed and comprehensive information about a wide variety of nanomaterials/nanoapproaches of interest to people from different backgrounds. From nanoflowers to nanocubes through lithography, self-assembly and biomaterials, the highly challenging task of covering as much as possible of the immense and fast-moving nanochemistry/technology area has been successfully and elegantly accomplished.

Excellently written and well-structured, the book also includes a very appropiate nano-introduction with the basics, many references and interesting 'nanofood for thought' questions in each chapter that add value to the book. Being one of the best and most comprehensive



From nanoflowers to nanocubes - the small world of nanomaterials

available texbooks on the subject and not being particularly 'nano' sized (820 pages), it is also a magnificent value for money.

In summary, this second edition of *Nanochemistry: A chemical approach to nanomaterials* is not only a 'must have' in the collection of anyone with a minimum chemistry/materials background, but also a comprehensive masterpiece of art that will introduce readers from various backgrounds to the fascinating world of nanomaterials and nanoscience.

'Nanofood for thought sections add value'

Retrosynthesis

Elements of synthesis planning
R W Hoffmann
Berlin, Heidelberg, Germany: Springer-Verlag
2009 | 227 pp | £26.99 (SB)
ISBN 9783540792192
Reviewed by Gordon Florence

From an undergraduate learning perspective the concept of synthesis planning or retrosynthesis can appear to be a daunting prospect. The idea of being asked to think backwards

In brief

An introduction to medicinal chemistry
Graham Patrick
Oxford, UK: Oxford University Press
2009 | 776pp | £29.99 (SB)
ISBN 9780199234479

This book, now in its fourth edition, provides a one-volume textbook for the variety of medicinal chemistry courses now being offered. It starts from first principles of drug action, to drug design and development and specific drugs, such as HIV inhibitors and painkillers. The text is supported by topical case studies and an online resource centre.

Molecular biology and biotechnology
John M Walker and Ralph Rapley (eds)
Cambridge, UK: RSC Publishing
2009 | 624pp | £49.95 (HB)
ISBN 9780854041251

This book has been revised and updated in this new third edition to reflect the latest developments in this rapidly expanding area. Chapters on the impact of molecular biology in the development of biotechnology have been updated and include the applications of molecular biology in the areas of drug design and diseases. There are also new chapters in developing areas such as genome technology, nanobiotechnology, regenerative medicine and biofuels. An ideal undergraduate text of interest to students of biology and chemistry, as well as to postgraduates.

Chemistry in quantitative language
Christopher Oriakhi
Oxford, UK: Oxford University Press
2009 | 490pp | £37.99 (HB)
ISBN 9780195367997

This book provides students with innovative, intuitive and systematic strategies to master problem-solving in chemistry. Though not a replacement for a standard textbook, this book serves as a valuable guide to solving chemical equations and calculations based on chemical equations. The wide variety of areas covered includes: formulae, equations, gas laws, solution chemistry, kinetics, equilibria, thermochemistry, thermodynamics and nuclear reactions.

for many is a big leap, despite the vast majority already possessing a well-stocked chemical toolbox and being more than capable to explain a multitude of complex mechanistic transformations. In *Elements of synthesis planning*, a reworked translation of his original German text, Reinhard Hoffmann sets out to 'demystify' the art of synthetic planning, which is an essential and vital skill practised every day throughout the worldwide organic chemistry community.

In 12 clear and logical chapters, Hoffmann takes the reader from the basic concepts of retrosynthesis (use of synthons, identifying key bond disconnections, unmasking symmetry elements etc) to dedicated chapters on the application of chiral building blocks, strategic planning of complex synthetic sequences and the synthesis of polycyclic ring systems. In the final chapter, all these concepts are brought together to elegantly compare several individual approaches to one of five representative natural products, highlighting the tactics and strategies employed.

As such, this text would ideally complement an advanced undergraduate course on complex organic synthesis, which is beyond the level of most standard organic chemistry textbooks. It would also prove highly useful to postgraduates at the beginning of their research careers in synthesis to inspire creativity and maybe put their ideas into practice.

Molecules on a large scale

Supramolecular chemistry
Jonathan Steed and Jerry Atwood
Weinheim, Germany: Wiley VCH
2009 | 990pp | £45.00 (SB)
ISBN 9780470512340
Reviewed by Phil Gale

At just under 1000 pages, the second edition of Steed and Atwood's *Supramolecular chemistry* is the most comprehensive overview of the area available in textbook form.

The book starts with an introduction to the basic concepts of molecular recognition, pre-organisation, the nature of supramolecular interactions and a look at biological systems as an inspiration for supramolecular design.

As the reader progresses through the book the level of complexity increases. The first part of the book covers molecular recognition with a series of chapters on cation, anion, ion-pair and neutral guest complexation by synthetic receptors that provide a logical and comprehensive introduction to each area. The central section centres on the solid state providing an overview of inclusion complexes, clathrates, interactions in crystals, coordination polymers and metal-organic frameworks. The final third covers self-assembly, topological bonding, sensing, molecular machines, catalysis and soft-matter.

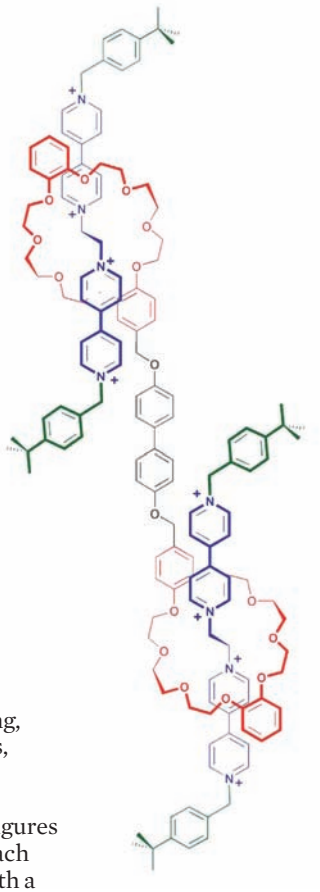
Of course in a textbook on supramolecular chemistry, figures are all-important and here each chapter is well illustrated with a combination of chemical diagrams and crystal structures. A separate section of colour illustrations is included for the more complex figures.

In addition to good coverage of the primary literature, perhaps one of the most useful features for those wishing to delve deeper are the key references at the start of each section to a seminal book or review which provides the interested reader with a gateway to the supramolecular literature.

Each chapter ends with a summary of key learning points and a useful section of study problems.

The book provides the foundation for a course on supramolecular chemistry with extra resources such as the solutions to the study problems and the figures in the book available online from the publisher.

Aimed at the senior undergraduate level, the book will also be a useful resource for both postgraduates and more experienced researchers alike and is highly recommended.



Rotaxanes are dumbell-shaped molecules threaded through macrocycles

'The authors have produced a text that will be a delight to teach from'

Starting from quantum theory

Quanta, matter, and change
Peter Atkins, Julio de Paula, and Ronald Friedman
Oxford, UK: Oxford University Press
2008 | 816pp | £39.99 (SB)
ISBN 9780199206063
Reviewed by Peter Taylor

This is a splendid book. True to the authors' philosophy as outlined in the preface, it approaches physical chemistry by first developing the quantum theory of molecular electronic structure, then by statistical arguments moves into thermodynamics, and thence to kinetics. Spectroscopy of various types, the electronic structure of solids, and the rudiments of molecular symmetry are all treated along the way, and the overall presentation is masterly, with sub-sections devoted to current illustrations of particular topics, chapter summaries, numerous exercises, and extensive useful tabular material, all within the book, to say nothing of the web resources that are also available.

The aim is to produce a book to accompany teaching physical chemistry according to this philosophy, which is something of a novelty, and one might ask whether this is a desirable or useful approach, as opposed for example to teaching thermodynamics and kinetics to some extent independently of one another and certainly independent of quantum chemistry, which is the common strategy.

The authors do a fine job of presenting the subjects in a connected, logical way – this approach to physical chemistry has a great deal to recommend it. This book in turn has a great deal to recommend it as an accompanying text.

One can point to minor omissions or disappointments: the authors focus almost exclusively on Boltzmann statistics and although Fermi–Dirac statistics get a mention Bose–Einstein does not (that I could find), which is a pity for several reasons, not the

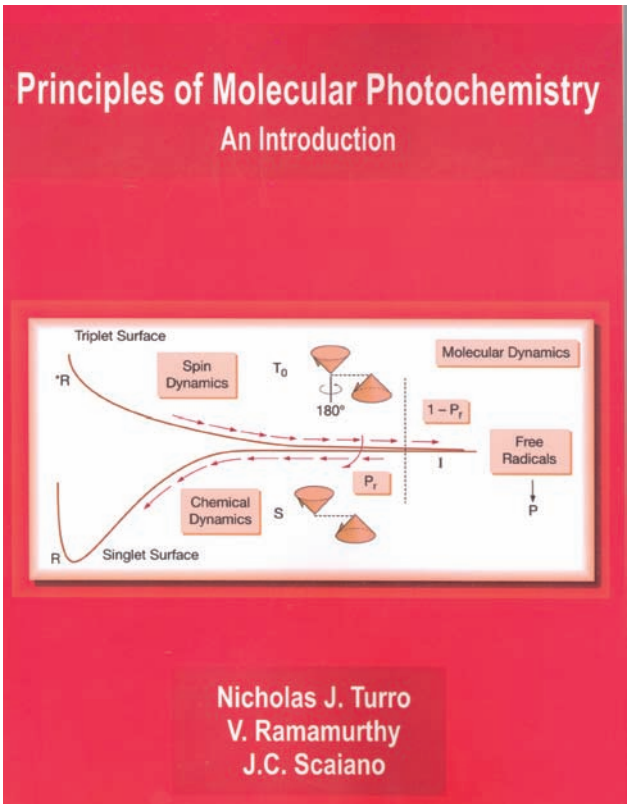
least of which is the opportunity to point out the difference a change of sign can make!

The concept of a spin Hamiltonian is mentioned only in an exercise, despite an extensive chapter on magnetic resonance spectroscopies. And for readers not in their first youth the difference between script and italic fonts – a significant part of their notation – is well-nigh invisible.

But these are trivial complaints: the authors have done a wonderful job and produced a text it will be a delight to teach from. I cannot recommend it too highly.

New light

Principles of molecular photochemistry: An introduction
Nicholas J Turro, V Ramamurthy and J C (Tito) Scaiano
Sausalito, California, US: University Science Books
2009 | 495pp | £42.99 (SB)
ISBN 9781891389573
Reviewed by Frank Wilkinson



This textbook aims to familiarise both students and researchers with the critical concepts and methods involved in studies of organic molecular photochemistry. It is an excellent introduction written by three supreme masters in this their field. Those familiar with earlier texts by Nick Turro, including his *Modern molecular photochemistry*, will not be surprised to learn that this is another first class up-to-date book. It gives an understandable general introduction to both photophysical and photochemical processes of importance in organic photochemistry and will be of interest not only to chemists but to biologists and material scientists.

Important topics such as radiative and non-radiative transitions between electronic states, energy and electron transfer and the theory of organic photochemical reactions are presented with plenty of examples and clear illustrations in well written chapters at a level appropriate for final year undergraduates. Some European students only familiar with SI units will need to know, for example, that a kcal mol^{-1} is 4.184 kJ mol^{-1} but they should not let this put them off using this well-crafted primer.

I am sure all research workers in organic photochemistry, novice and expert alike, will find this book an invaluable addition to their personal libraries. They are likely to find the clear descriptions of complicated processes with a minimum of mathematical treatment most enlightening and the comprehensive list of references extremely useful.

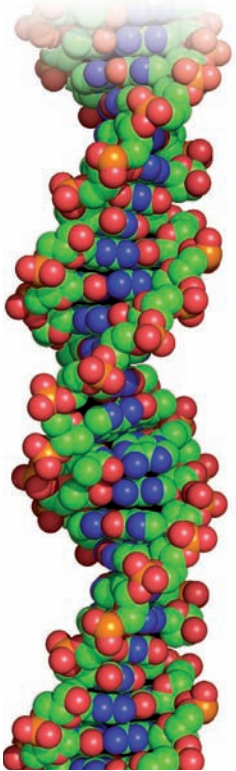
Chemical basis of biology

Essentials of chemical biology: structure and dynamics of biological macromolecules
Andrew Miller and Julian Tanner
Chichester, UK: Wiley
2008 | 590pp | £37.50 (SB)
ISBN 9780470845318
Reviewed by Sophie Jackson

Chemical biology has been a growth area in research in chemistry departments worldwide over the last ten years, and its importance is now being recognised by the increasing degree to which it is being taught at an undergraduate level. The recently published *Essentials of chemical biology* by Andrew Miller and Julian Tanner is an excellent new textbook in this area targeted at third and fourth year undergraduates as well as young researchers. The book provides an important foundation in both the chemistry associated with biological systems, in addition to the wide array of chemical techniques and methods currently used to investigate biological problems.

The book starts with a broad background into the structure, chemical and biological syntheses of the main classes of biological macromolecules and then focuses on the molecular biology and biophysical techniques that are extensively used in chemical biology. In each case, the underlying physical chemistry is described in detail, in addition to its application to the study of biological systems. Later chapters focus on processes key to biological function such as molecular recognition and binding, kinetics and catalysis.

In summary, *Essentials in chemical biology* is a valuable resource not only for chemistry students who are venturing into and interested in biological systems, but also biochemistry and biology students who want a fundamental understanding of the physical and chemical basis of biology and the techniques used in its study.



Bio-aided chemistry

Practical biotransformations: A beginner's guide
Gideon Grogan
Chichester, UK: Wiley-Blackwell
2009 | 331 pp | £34.95 (SB)
ISBN 9781405171250
Reviewed by Andrew Carnell

This is the latest volume in a series primarily aimed at postgraduates and researchers published by Wiley. It will appeal to synthetic organic chemists wanting to become active in, or engage with, the use of

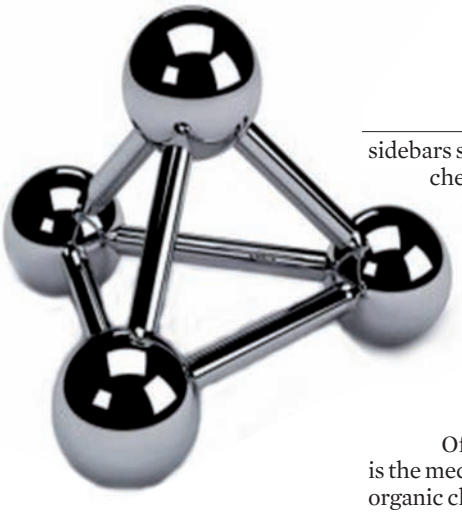
enzymes and microorganisms for carrying out biotransformations.

It is primarily a laboratory manual with many useful and easy to follow experimental protocols, including lists of reagents, equipment and stepwise procedures to follow. However, it delivers much more, with appropriate levels of detail in each section allowing the reader to appreciate the fundamentals behind this interdisciplinary practice.

Very little prior knowledge of biochemistry, microbiology or molecular biology is assumed. The reader is led through sections of increasing degrees of specialisation from using commercially available enzymes (suppliers are given) or growing and isolating your own, to gene cloning and directed evolution.

The book could work in two ways: in an appropriate environment one could get quite a long way towards setting up a working biotransformations laboratory; alternatively the book would facilitate collaboration with life scientists by demystifying terminology and methodologies. There is an invaluable section explaining how to search gene and protein sequences online with some guided examples. This would allow the uninitiated to easily identify possible alternative sources of biocatalysts given a sequence of a known enzyme, which may have shown promise for a new reaction.

This book is easy to read and well organised and can be dipped in and out of, depending on your level of experience in different areas. Appendices on amino acid and nucleic acid base structures, the genetic code, buffers and standard microbial growth media and other practical resources are very useful. Well selected references are given for further reading at the end of each chapter. Overall an excellent, interesting and user-friendly manual/textbook.



Chemistry primer

Chemistry^3: Introducing inorganic, organic and physical chemistry
Andy Burrows, Andy Parsons and Gareth Price
Oxford, UK: Oxford University Press
2009 | 1416pp | £42.99 (SB)
ISBN 9780199277896
Reviewed by Hamish Kidd

Chemistry^3 spans all three strands of chemistry – organic, inorganic and physical – to enable students to see the subject as a single, unified discipline. It provides students with an understanding of the fundamental principles of chemistry on which to build later studies.

The author team includes two specialists in chemistry education who bring to the book a wealth of experience of teaching chemistry in a way that students enjoy and understand. The result is a text that builds on what students already know from school and tackles their misunderstandings and misconceptions, thereby providing a seamless transition from school to undergraduate study.

The text is well illustrated and full of useful and interesting boxes and sidebars showing the ubiquity of chemistry in both nature and everyday human life. These enhancements, together with helpful notes and cross-references aid comprehension and mean that the book can be easily dipped into to provide learning in bite-sized chunks.

Of particular usefulness is the mechanistic approach to organic chemistry, rather than the old-fashioned 'functional group' approach.

Instead of avoiding the maths, *Chemistry*^{3} provides structured support, in the form of careful explanations, reminders of key mathematical concepts, step-by-step calculations in worked examples, and a Maths Toolkit, to help students get to grips with the essential mathematical elements of chemistry.

Like many textbooks these days this book is supported by a teaching and resource package online. For students there are interactive and animation-based activities, 3D rotatable molecular structures and interactive 'walk-throughs' of solutions to selected problems. For lecturers there is a 'test bank' of multiple choice questions and illustrations from the book available to download.

This book would be ideal for introductory courses in organic, inorganic and physical chemistry, both for first-year chemistry undergraduates and for students in allied sciences, such as biochemistry, seeking a good grounding in introductory chemistry.

Chemistry basics are best learned by use of a unified approach

'The text provides a seamless transition from school to undergraduate'