

**UNIVERSITY OF CAMBRIDGE  
DEPARTMENT OF BIOCHEMISTRY**

**Reading for NST Part IB Biochemistry & Molecular Biology, 2010-2011**  
(Course organiser - Dr Robin Hesketh, e-mail [trh12@cam.ac.uk](mailto:trh12@cam.ac.uk))

Most of these books should be available in your College library but to give as many students as possible an opportunity to use them on a regular basis the Department of Biochemistry also keeps copies in a Part I Section of the Colman Library (in the Main (Hopkins) Biochemistry building facing Tennis Court Road on the Downing Site). Selected books may be borrowed overnight from this collection. You are also welcome to make use of the main collection of books and journals but borrowing these is not permitted. Part II and Part III Biochemistry students have priority for seating in the library. The Assistant Librarian is available to help locating books. Part IB BMB students who wish to use the library outside the hours of 08:30 – 17:00 Monday – Thursday, 08:30-16:00 Friday should ask the Hopkins building receptionist to programme their University proximity card for access.

**RECOMMENDED BOOKS, SUITABLE FOR STUDENT PURCHASE**

If you wish to buy, we suggest that you browse first in libraries, book shops or third-years' book collections.

**(a) Leading general biochemistry texts**

- Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K. and Walter P. *Molecular Biology of the Cell*. Garland Science, 5<sup>th</sup> edition 2008 (£59.99 paperback). The largest and most comprehensive of the cell and molecular biology textbooks, now with a CD-ROM as well as a revised Problems Book. Will be useful for Part II courses as well as IB.
- Berg, J. M., Tymoczko, J. L. and Stryer, L. *Biochemistry*. Freeman, 6<sup>th</sup> edn, 2006. (£51.99)  
Similar in style and layout to previous editions but expanded and updated. See <http://www.whfreeman.com/biochem6> for access to Student Resources.
- Voet, D. & Voet, J. G. *Biochemistry*. Wiley, 3<sup>rd</sup> edn 2007. (£41.95) Note: Forthcoming 4th edition (Oct 2010)
- Voet, D., Voet, J. G. & Pratt, C. W. *Principles of Biochemistry*. Wiley, 3<sup>rd</sup> edn, 2008. (£47.99)  
Voet et al includes much medically relevant material within a clear and straightforward account of mainline Biochemistry (CD-ROM included). It is not simply an abridged version of their more advanced and comprehensive book.
- Lodish, H., Berk, A., Zipursky, S. L., Matsudaira, P., Baltimore, D. and James Darnell, J. *Molecular Cell Biology*, Freeman, 6<sup>th</sup> edn 2007. (£52.99)  
Restructured and updated from previous edition, with extra emphasis on experimental technologies.  
See <http://www.whfreeman.com/newcatalog.aspx?molecularcellbiology>
- Alberts, B. et al. *Essential Cell Biology*, Garland, 3<sup>rd</sup> edn 2009. (£45.99)

This strictly is a Cell Biology text, but it covers many aspects of modern biochemistry, although without so much on the "structural" side. Comes with a free CD-ROM. It is a spin-off from Alberts *Molecular Biology of the Cell*, an outstanding textbook which is very useful to set the information in the course into its wider biological context.

There are good companion web sites that give further information about these books, and contain useful onward links.

Alberts. <i>Molecular Biology of the Cell</i>	<a href="http://www.garlandscience.co.uk/textbooks/">http://www.garlandscience.co.uk/textbooks/</a>
Stryer, 6 <sup>th</sup> edition. <i>Biochemistry</i>	<a href="http://www.whfreeman.com/biochem6">http://www.whfreeman.com/biochem6</a>
Voet, Voet & Pratt 3rd edn. <i>Principles of Biochemistry</i>	<a href="http://eu.wiley.com/WileyCDA/WileyTitle/productCd">http://eu.wiley.com/WileyCDA/WileyTitle/productCd</a>
Lodish. <i>Molecular Cell Biology</i>	<a href="http://www.whfreeman.com/newcatalog.aspx?search=Molecular+Cell+Biology&amp;isbn=0716776014">http://www.whfreeman.com/newcatalog.aspx?search=Molecular+Cell+Biology&amp;isbn=0716776014</a>
Alberts. <i>Essential Cell Biology</i>	<a href="http://www.garlandscience.com/textbooks/0815341296.asp">http://www.garlandscience.com/textbooks/0815341296.asp</a>

### (b) Other good biochemistry texts

- Karp, G. *Cell and Molecular Biology: Concepts and Experiments*. Wiley, 6<sup>th</sup> edn 2010. (£46.99)  
This book emphasises experimental approaches to core concepts through the use of, *inter alia*, high quality pictures to convey the processes involved.
- Nelson, D. L. & Cox, M. M. *Lehninger Principles of Biochemistry*. Freeman, 5<sup>th</sup> edn, 2008 (£49.99).  
Particularly useful for bioenergetics and metabolism. Good for signalling.
- Mathews, C. K., Van Holde, K. E. & Ahern, K. G. *Biochemistry*. Addison Wesley, 3<sup>rd</sup> edn, 2000. (£54.99). 4<sup>th</sup> edn expected

For a quick overview of factual material - useful for revision,

- Hames, B. D. et al. *Instant Notes in Biochemistry*. Bios, 3<sup>rd</sup> edn, 2005. (£19.99)
- Turner, P. C. et al. *Instant Notes in Molecular Biology*. Bios, 3<sup>rd</sup> edn, 2005. (£19.99)

And for an introduction to practical biochemistry,

- Wilson, K. & Walker, J. *Principles and Techniques of Biochemistry and Molecular Biology*. CUP, 7<sup>th</sup> edn, 2010 (£37.50)

### Other sources of information

#### **Journals, well worth consulting**

Research-oriented summaries (2-4 pages) of important topics in biochemistry and molecular biology are contained in the monthly journal *Trends in Biochemical Sciences* (usually known as TIBS). A similar journal is *Bioessays*. The *Scientific American* usually contains at least one biochemical article per issue and is well worth a glance. Copies of these journals are found near the Part I reading area.

## Web Sites

- Ever more useful source of information. We shall just give here two of our favourite general addresses, which have many forward links.

Online Mendelian Inheritance in Man.

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM>

Swiss Institute of Bioinformatics.

<http://www.expasy.ch/>

## BOOKS ON SPECIFIC TOPICS, FOR PERUSAL IN LIBRARIES

### (a) Genes, DNA, genetic manipulation, etc.

- Brown, T. A. *Gene Cloning and DNA analysis: an introduction*. Blackwell Science, 6<sup>th</sup> edn 2010 (£32.50)
- Brown, T. A. *Genomes*. Bios, 3<sup>rd</sup> edn, 2006. (£47.00)
- Howe, C. J. *Gene Cloning and Manipulation*. CUP, 2<sup>nd</sup> edn, 2007. (£2899)
- Lewin, B. *Genes IX*. Pearson Higher Education, 2007. (£54.99)
- Ptashne, M and Gann, A. *Genes and Signals*, Cold Spring Harbor Laboratory Press. 2001 (£25.00)
- Watson, J. D. et al. *Molecular Biology of the Gene*. Benjamin Cummings, 6<sup>th</sup> edn 2007. (£53.99)
- Lesk, M. *Introduction to Genomics*. OUP 2007 (£26.99)
- Morgan, David O. *The Cell Cycle*. OUP 2006 (£30.99)
- Serdyuk, Igor N. *Methods in Molecular Biophysics*. CUP 2007 (£57.00 Hardback)

### (b) Proteins and enzymes

- Abeles, Robert H., Frey, Perry A., Jencks, William P. *Biochemistry*. Jones and Bartlett Publishers International, 1992 (£39.95)
- Branden, C. & Tooze, J. *Introduction to Protein Structure*. Garland, 2<sup>nd</sup> edn, 1999. (£41.99). Beautifully illustrated
- Bugg, T *Introduction to Enzyme and Coenzyme Chemistry*. Blackwell Science, 2<sup>nd</sup> edn, 2004 (£37.50)
- Creighton, T. E. *Proteins*. Freeman, 2<sup>nd</sup> edn, 1992. (£54.99)
- Darby, N. J. & Creighton, T. E. *Protein Structure*. IRL Press, 1993. (£9.95)
- Fersht, A. R. *Structure and Mechanism in Protein Science*. Freeman, 3<sup>rd</sup> Rev edn 1999. (£50.99) Good for those who like to dig into fundamentals.
- Attwood, T. K. & Parry-Smith, D. J. *Introduction to Bioinformatics*. Longman, 1999. (£39.99) Very clear on what it's all about, and with nitty gritty too.

### (c) Metabolism, hormones, signalling etc.

- Fell, D. *Understanding the Control of Metabolism*. Portland Press, 1996. (£18.95)  
A clear and readable discussion of how metabolism is controlled, with particular emphasis on metabolic control analysis. It goes beyond what you need to know but is worth a look nevertheless.
- Haynie, D. T. *Biological thermodynamics*. CUP, 2<sup>nd</sup> edn 2008. (£29.99)

- Gadian, D. G. *NMR and its applications to living systems*. OUP, 2nd edn, 1996. (£45.00) Gives a fairly up-to-date description of the applications of magnetic resonance in biology. This is for those of you who are really interested in this technique.
- Hardie, D. G. *Biochemical Messengers Factors*. Kluwer, 2<sup>nd</sup> edn, 1998. (£24.99) Clear conceptual introduction.
- Hardie, D. G. & Hanks, S. ed, *The Protein Kinase Factsbook*. Academic Press, 1995. Paperback (£68.99 two volume set)
- Heldin, C-H. & Purton, M. ed, *Signal transduction*. Stanley Thornes, 1998. (£38.00) (Reprint of 1996 edition from Chapman and Hall) Remains useful despite its age.

**(d) Bioenergetics**

- Nicholls, D. G. & Ferguson, S. J. *Bioenergetics 3*. Academic Press, 3<sup>rd</sup> edn, 2002. (£46.00). Excellent, and all you need.

**(e) Cancer**

- Hesketh, R. *The Oncogenes and Tumour Suppressor Gene Factsbook*. Academic Press, 2<sup>nd</sup> edn, 1997. (£48.99)
- McKinnell, Robert G & Parchment, Ralph E. *The Biological Basis of Cancer*. CUP 2<sup>nd</sup> edn, 2006. (£37.00)