

Book Reviews

Catchup Maths and Stats for the Life and Medical Sciences

By Michael Harris, Gordon Taylor and Jacquelyn Taylor

200 pp, Scion Publishing Ltd, August 2005, ISBN 1904842119 (paperback, £14.99)

Essential Mathematics and Statistics for Science

By Graham Currell and Anthony Dowman

360pp, John Wiley and Sons Ltd, April 2005, ISBN 0470022299 (paperback, £24.95)

These texts represent recent additions to a growing list of publications directed at supporting life science students in learning mathematics and statistics. Although both books attempt to cover these major topics within a single text - always a challenging task - they differ significantly in their approach, content, style and format of presentation.

Catchup Maths and Stats for the Life and Medical Sciences provides students with a concise introduction to, or revision of, key principles and concepts with which they need to be familiar. The publishers proclaim that it aims to bring students “up to speed” with what they need to know “in the shortest possible time” and its style of presentation is certainly in accord with this aim. It does not, and neither does it claim to, provide a comprehensive and in-depth coverage of topics. Although at first glance the format appears minimalist in terms of the extent of explanatory text, with sub-topics often condensed into a definition, a sentence or two of brief explanation, and a worked example for illustrative purposes, it is user-friendly and does appear to speed up understanding. It is extremely concise and gets straight to the point - as such it represents an excellent refresher or revision course for students who need to re-visit the mathematics and statistics they covered at GCSE or post-GSCE levels. One criticism of the book is that it contains too few test questions at the end of each short chapter (some chapters have none!), so students have little opportunity to either practise what they have learned (or revised) or to evaluate their level of knowledge and skills competency. The authors actually suggest that “... it gets easier with practice” – so why not provide the opportunity for some meaningful practice? In addition, the section entitled ‘Applications of mathematics’ is rather too brief, covering only SI units, moles, pH, buffers and kinetics. However, the inclusion of a flow chart for choosing statistical tests (Appendix 1) is a welcome addition, since many students require help at this point - assisting students in their selection of the correct statistical test is vital, particularly when statistical software will often perform the necessary calculations and deliver the ‘result’.

Some might wish to recommend that their students work through the book (or specific chapters of it) prior to commencing their undergraduate programme,

whilst others might choose to recommend it as a useful revision guide capable of supporting a range of introductory courses at first-year undergraduate level.

Essential Mathematics and Statistics for Science is a very different book to that reviewed above. Currell and Dowman claim that this book “has been designed principally as a study text for students on a range of undergraduate science programmes: biological, environmental, chemical, forensic and sports sciences”, and that the book assumes readers have attained at least grade C in Mathematics at GCSE level; there is no suggestion that any prior knowledge of statistics is necessary. However, the complexity of some of the content (both in terms of the style of explanations and sub-topics included), as well as the presentation format suggests that a higher level of understanding and competency in mathematics than grade C at GCSE level is required. The format appears unnecessarily complex, with chapters divided into units, units divided into sections and sample questions in (slightly) differently styled boxes, as well as examples, embedded within the text. On the positive side, all elements (including equations) are numbered to assist the reader in their navigation of the content and an icon is used to indicate references to a supporting web site (www.wileyurope.com/go/currellmaths). Where possible the examples and test questions are presented in a scientific context, with answers to in-text questions appearing at the end of the book and fully worked answers available via the web site. However, the font size is small and the quality of some graphs poor. Some of the wording is ambiguous and possibly confusing for weaker students, e.g. “In most dilutions, the *amount of the solute stays the same*”, while the occasional inaccuracy or over-simplification in biological detail may irritate some tutors. It is refreshing to find the inclusion of chapters dealing with ‘Scientific Investigation’ and ‘Experimental Design and Analysis’ (final chapter), although it is unclear why these don’t lead the second half of the book which deals with statistics. The supporting web site provides additional resources for both students and their tutors (the latter via a password-protected section), including data sets for use with statistical and spreadsheet software such as Minitab and Excel.

Some first-year undergraduates (particularly those lacking confidence in mathematics) may find this text intimidating, and it may be more appropriate for use with second and final-year classes. Tutors should request an inspection copy and check out the web site before deciding whether or not this book meets their requirements and whether they wish to recommend it to first-year life science undergraduates.

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