Multilevel and Longitudinal Modeling Using Stata (2nd ed.).

Sophia RABE-HESKETH and Anders SKRONDAL. College Station, TX: Stata Press, 2008, 562 pp., $94.95 (P), ISBN: 1-59718-040-8.

For its second edition, *Multilevel and Longitudinal Modeling Using Stata* has undergone a major revision. Authors Sophia Rabe-Hesketh and Anders Skrondal have expanded the book by 245 pages, thoroughly revised the existing chapters, and added three more. The result is much more than a software guide. Rather, they have produced a comprehensive, nontechnical introduction to multilevel/mixed effect models that would be an excellent choice of text for application-oriented courses on the analysis of longitudinal, panel, or clustered data.

The original volume covered linear and generalized linear mixed effect models and their use for continuous and discrete outcomes. It went beyond longitudinal data models to discuss nested and crossed random-effect models as well. The second edition extends the scope of the book by adding material on discrete-time survival models and an introductory chapter that reviews linear regression and analysis of variance. The latter chapter will be useful for students who need a refresher on prerequisite material, and even includes some helpful "self-assessment exercises" and their solutions. The depth of the book has also been increased with the addition of more advanced, though not necessarily more technical, topics, some of which are usefully sign-posted as such. The presentation is carried forward through examples drawn from a variety of disciplines and analyzed using Stata commands, including the authors' own gllamm facility. Commands for the examples, datasets, and answers to exercises (for instructors) are available online.

Stata tends to be more widely used in business, economics, and in certain branches of the social sciences than in the physical and life sciences, but the authors' perspective transcends the usual boundaries between statistical subdisciplines. In addition to the inclusion of examples drawn from areas from the health sciences to economics, Rabe-Hesketh and Skrondal move seamlessly between the methods and language of biostatistics and econometrics, and resolve the potentially confusing distinctions between hierarchical and mixed-effect formulations of equivalent models.

For current Stata users and in disciplines where it is the statistical software of choice, I highly recommend this well-written and insightful book as a resource for self-study or as a course text in applied multilevel modeling. For others, the book's connection to Stata will make it less appealing, but because this book is much more about the effective use of models than software, it still may be worth a look.

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Probability and Statistical Inference (8th ed.).

Robert V. HOGG and Elliot A. TANIS. Upper Saddle River, NJ: Prentice Hall, 2010, xiv + 622 pp., $137.33 (H + CD), ISBN: 978-0-321-58475-5.

The first edition of this classic text appeared in 1977 and retailed for a mere $14.95! Since then, *Probability and Statistical Inference* has provided an introduction to mathematical statistics for countless generations of students, myself included. I still own my original copy of the second edition, which served as the required text for my first course in statistics, a course geared toward junior and senior undergraduates in engineering and computer science. I greatly valued the text from the perspective of a student trying to master the basic concepts of probability and inference. Two decades later, I continue to value the text from the perspective of a professor, one who is occasionally charged with the task of trying to teach these very same concepts!

Naturally, the book has evolved through the years. The chapters on probability now feature more examples and exercises dealing with actuarial science, econometrics, and finance. By the authors' own admission (p. x), "We are less dependent upon problems involving coins, cards, and dice." A short but substantive chapter on Bayesian methods has been added, along with an instructive section on resampling methods. At the end of each chapter, a section entitled "Historical Comments" is now featured. The passages in these sections are both interesting and enlightening, and should appeal to instructors as well as students. The use of Maple, a computer algebra system, is covered in both the text and an accompanying CD-ROM. The CD-ROM also features datasets for applications and examples. The layout of the text, including the figures and graphics, has been improved and modernized.

At its core, however, the key strength of Hogg and Tanis continues to be the exposition: the writing is clear and cogent, sophisticated and substantive, illuminating and inspiring. Many books may feature more "bells and whistles" than Hogg and Tanis, yet few deliver explanations as effectively or as eloquently.

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