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TIMM, N. H. **Applied Multivariate Analysis.** Springer, New York, 2002. xxiv + 693 pp. US$89.95/EUR 89.95. ISBN 0-387-95347-7.

My first reaction to this book was to think "Oh no — yet another book on multivariate analysis!" but I do believe that this book is worthy of further consideration.

The author, Neil Timm, professor of education at the University of Pittsburgh, has many years' experience in the field of multivariate statistics and has published numerous papers and books. This book may be seen as a development of the book by Timm & Mieczkowski (1997) except that no consideration is given to corresponding univariate procedures in the current book.

This book was written to provide an introduction for students and researchers and has evolved from courses and seminars taught by the author. The reader is assumed to have undertaken courses in multiple linear regression, analysis of variance, and experimental design. Although the book avoids the use of calculus, extensive use is made of linear algebra.

Following a brief introductory chapter there are two review chapters that between them account for one-quarter of the 693 pages in this book, which provides a measure of the depth and detail that these chapters go into, even though results are presented without proof. The first of these two review chapters considers fundamentals of vector spaces and matrix algebra relevant to the manipulation of multivariate data and the second addresses various aspects of multivariate distributions and the theory of linear models.

The remaining seven chapters of the book cover two main aspects of applied multivariate analysis: a broad range of linear multivariate models for statistical estimation and inference and a number of exploratory data analysis procedures.

The number and variety of multivariate models considered is impressive. After a chapter on multivariate regression models, which includes MANOVA (multivariate analysis of variance) and MANCOVA (multivariate analysis of covariance) models, a whole chapter is devoted to a class of models called seemingly unrelated regression (SUR) models which includes the CGMANOVA (completely general MANOVA) and GMANOVA (generalized MANOVA) models. Yet more models are considered in the following chapter, including random coefficient regression models, mixed multivariate models and multivariate hierarchical linear models. In addition to checking model assumptions and model development, consideration is given to numerous associated tests and issues such as power and robustness.

The exploratory data analysis procedures considered include discriminant and classification analysis for two or more populations, principal component analysis, canonical

correlation analysis, and exploratory factor analysis. Also considered are hierarchical and nonhierarchical methods of cluster analysis and metric and nonmetric methods of multidimensional scaling.

The final chapter is concerned with structural equation models and considers path diagrams, confirmatory factor analysis, path analysis, and longitudinal analysis with latent variables.

Methods are applied to examples taken primarily from the behavioral and social sciences, as well as the biological and physical sciences. Techniques are illustrated using SAS Version 8 for Windows. Wherever possible standard SAS procedures are employed, although the interactive matrix language (IML) is also used. One of the strengths of this book is that the data sets and the SAS routines are available on the author's and publisher's websites.

Exercises are included at the end of many of the sections, although no answers are supplied, which is a weakness. Relevant statistical tables are provided in the Appendix. The list of 642 references includes many classics and several that are much more recent, reflecting advances in multivariate analysis made within the past ten years. As you would expect, there is also an author index and a comprehensive subject index.

As the author acknowledges, no text on applied multivariate analysis can consider all of the multivariate techniques available. Although there may be better books available for those wishing to apply multivariate methods, particularly the exploratory data analysis techniques, this book makes a commendable attempt at describing and integrating both the theory and the practice. Even though the author suggests how the material may be used to develop a one- or two-semester course, I am not convinced that it is suitable for students and researchers, unless they have an appropriate background. Rather, this book is more likely to form a useful reference work and to enhance the knowledge and understanding of academic statisticians and experienced practitioners.

Reference

Timm, N. H. and Mieczkowski, T. A. (1997). *Univariate and Multivariate General Linear Models: Theory and Applications Using SAS Software*. Cary, North Carolina: SAS Institute.

M. J. Cottee
Department of Statistics
University of Hertfordshire, U.K.

GHOSH, J. K. and RAMAMOORTHI, R. V. **Bayesian Nonparametrics.** Springer, New York 2003. xii + 305 pp. US$79.95/EUR 84.95. ISBN 0-387-95537-2.

This is a book not so much about Bayesian nonparametrics as about Bayesian consistency. In the past four years or so the authors have contributed a number of research papers in the field. The nonparametric prior distributions which do appear in the book are constructed to fit in with the theorems which guarantee that the sequence of posterior distributions accumulate in suitable neighborhoods of the "true unknown" parameter. This "unknown" in Bayesian nonparametric problems is the distribution or density function which generated the observations.

Because work goes on in spaces of distribution or density functions, the types of neighborhood considered are based on distance measures between such functions. The book deals with weak neighborhoods and (strong) L1 neighborhoods. For dealing with the former there is the long-standing Schwartz theorem which provides a support condition for the prior as being sufficient for weak consistency. And for the latter there is Theorem 4.4.4 which appears in the book. These theorems cover the case when the prior is supported by densities. When the prior is not supported in such a way (for example, the Dirichlet process prior) then there are a variety of possible procedures for establishing weak consistency, such as Theorem 4.2.1 in the book.

While Bayesian consistency has been studied for many years, it is only recently (since about 1999) that progress has been made with the establishment of sufficient conditions for strong consistency. It is therefore quite a brave attempt to summarize and feel totally confident with results that have yet to stand the test of any time at all. The difficulty with dealing with such a new topic does show up to some extent in the book; it is somewhat fragmentary. Nevertheless, it is a fine review of the literature up to the present day.

Chapter 1 goes straight into consistency, looking at Doob's theorem on consistency, parametric consistency, and asymptotic normality. Chapters 2 and 3 are quite informative. They deal with the mathematical background for the existence of nonparametric priors and pay special attention to the well-known Dirichlet process prior and the not so well-used Pólya tree prior. For those interested in the rigor behind nonparametric priors these are useful chapters.

The consistency theorems are stacked up in Chapter 4. The new theorems deal with consistency for priors supported by densities and this is where I feel the book is at its most vulnerable. For example, it sets out that the existence of a uniformly consistent sequence of tests (a wholly classical concept) is a fundamental ingredient for establishing Bayesian consistency. This, to me, has always been a highly curious state of affairs. Is there no Bayesian phenomenon which achieves the same result? Well there is and no one should really be surprised by this. However, following the book and the Bayesian looking for consistency will be preoccupied with constructing classical tests!

A number of examples employing the theorems from Chapter 4 are considered in Chapter 5. Chapter 6 and Chapter 7 consider the theorems applied to semiparametric models. Finally, Chapters 9 and 10 deal with consistency for priors suitable for survival models and so are those parts of the book most likely to appeal to *Biometrics* readers, though the emphasis remains on consistency.

In conclusion, the book presents theorems and examples relating to Bayesian consistency. The authors have summarized the current state of the literature well, though with such new work, significant progress will likely make the book look very old in just a few years' time.

S. G. Walker
Department of Mathematical Sciences
University of Bath, U.K.

FAIRCLOUGH, D. L. **Design and Analysis of Quality of Life Studies in Clinical Trials.** Chapman and Hall/CRC, Boca Raton, Florida, 2002. xvii + 307 pp. US$74.95. ISBN 1-58488-263-8.

This book shares Diane Fairclough's expertise with analysis of longitudinal quality of life data gained over many years working at St. Jude's Children's Research Hospital, the Harvard School of Public Health, the Dana Farber Cancer Institute, the AMC Cancer Research Center, and the Department of Preventative Medicine and Biometrics at the University of Colorado Health Sciences Center. Dr. Fairclough has also served as an associate editor of the journal *Quality of Life Research* and on the board of directors of the International Society for Quality of Life Research. Aspects of quality of life research involving development and validation of quality of life instruments are for the most part not addressed by this work, nor are methods estimating quality of life adjusted survival endpoints. A useful overview of those topics is included in Fayers and Machin's (2000) textbook on quality of life published by Wiley. Rather Fairclough focuses attention on longitudinal data analysis methods and missing data issues that arise in the quality of life setting, with a helpful array of SAS and Splus software code accompanying the described approaches. Appropriate attention is also given to aspects of design in the longitudinal data setting that many readers will find useful, particularly in the final chapter of the text.

Topics and analysis methods range from pragmatic approaches to approaches requiring considerable statistical sophistication. Three cancer research studies of quality of life with varying degrees of missing data and recorded measures over time are considered in explaining concepts throughout the text. Although there are jewels of information accessible to less statistically minded investigators, readers are expected to have some graduate level training in statistical methods as well as SAS and Splus experience to fully appreciate its offerings, and indeed statistical training can be helpful in spotting occasional typos. Overall this text is very accessible, and is a nice companion text to popular longitudinal and missing data reference texts by authors such as Diggle, Liang, and Zeger (1994), Little and Rubin (1987, 2002), Rubin (1987), Schafer (1997), and Verbeke and Molenberghs (1997, 2000), where this list is far from exhaustive. Although the data examples appearing throughout the text are well described, access to the data would have been a useful asset for course instructors and for readers wishing to further explore suggested SAS code.

There are 12 chapters in the text and a brief glimpse of their content follows. Chapter 1 begins with an overview of common health-related quality of life measures. For instance it discusses the difference between measures of health status as opposed to patient preference measures, discusses generic versus disease-specific instruments, and defines Likert versus visual analog scales for collecting patient responses. This chapter also describes quality of life information measured in the three aforementioned cancer research trials and foreshadows concerns about missing data profiles that are addressed later in the text. Chapter 2 raises issues necessary for thoughtful protocol development, such as identifying an appropriate research question, settling on a useful quality of life measure, sorting out timing issues in the collection of said data, and choosing modes of data collection that will minimize bias and missing data. Chapter 3 introduces repeated measures and growth curve models with guidance on which modeling paradigm to choose. The presentation is nicely hands-on in that SAS code is provided for mean and covariance structure modeling throughout.

Chapters 4–9 discuss missing data issues and various corresponding approaches to longitudinal analysis. Chapter 4 begins by outlining different types of missing data structures, for instance monotone versus intermittent missing data patterns, and then discusses common missing data mechanisms such as missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR). SAS code for a test of MCAR versus MAR with multivariate normal data is also given in this chapter, as well as code for displaying patterns indicative of MNAR data. Chapter 5 reviews commonly used analytic methods for MCAR longitudinal data, such as repeated univariate analyses and multivariate analysis of variance, with caveats against inappropriately relying upon MCAR assumptions demonstrated through simulation. Existing methods such as mixed models, repeated measures, and using the baseline assessment as a covariate rather than an outcome are discussed as possible approaches for analysis of MAR data. Chapters 6 and 7 discuss methods for single and multiple imputation of missing values, with emphasis on the latter as a useful method for sensitivity analysis that more appropriately takes variability of the imputed values into account. Chapters 8 and 9 continue with an introduction to more advanced analysis methods for exploration of MNAR longitudinal data, such as pattern mixture models, random effects mixture models, shared parameter models, and selection models.

Chapter 10 presents a range of methods for reducing the dimension of longitudinal data structures, for instance using trajectories over time or area under the curve, with discussion of both individual-specific summary measures and summary statistics computed across individuals as well as time. Section 10.5 also briefly discusses options for summarizing information across various quality of life domains or subscales using weights. Details of creating the more sophisticated weights, such as factor analytic weights, are not given, nor does this seem to be a goal of the text. The flavor of this discussion instead is to guide readers in terms of choosing and interpreting a weighting method amongst those often cited in the literature. Chapter 11 follows with discussion of methods for addressing multiple comparisons and protection of type I error. Chapter 12, entitled "Designs: Analysis Plans" offers very nice examples and SAS code for nontrivial sample size computations pertaining to repeated measures and growth curve analyses that will appeal to many readers. Two well laid out checklists, one for issues relevant to the statistical analysis plan and one for issues relevant to reporting of results, round out this chapter and the text.

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S. Murray
Department of Biostatistics
University of Michigan
Ann Arbor, U.S.A.

KNOTTNERUS, P. **Sample Survey Theory: Some Pythagorean Perspectives.** Springer, New York 2003. xix + 417 pp. US$69.95. ISBN 0-387-95407-4.

This is a book with the classical interest of how to infer on a finite population mean of a variable, based on a random sample and observing the variable in the units of the drawn sample. The author of the book has published previously the title *Linear Models with Correlated Disturbances* (Springer, New York, 1991). This fact explains in part the new approach that the author gives in his new volume.

The book contains three parts. A novel and systematic view of classical sampling theory is considered from the sampling autocorrelation coefficient (rho) concept in Parts I and II. With this approach, a general set of rho equations describes the estimators of the population mean or total, as well as their variances and the corresponding variance estimators, for a whole family of sampling designs. Part III describes a general procedure for obtaining more efficient estimators; the traditional approach to these problems is based on the determination of the stationary saddle point of the corresponding Lagrangian function of the constrained estimation problem. The solution of this kind of constrained estimation problem is identical to the solution of an ordinary unconstrained linear least squares problem. The covariance matrix of the constrained estimator follows from the Pythagorean theorem, and resembles the Kalman equations from systems theory. This new approach could be interesting for specialized students in linear models, in multiple regression or in econometrics, but I think that it is complex as a first introductory text on sampling theory.

In my opinion, two good introductory books on sampling theory are *Mathematical Methods in Sample Surveys* by H. G. Tucker (World Scientific, Singapore, 1998) and *Sample Survey Principles and Methods,* third edition, by V. Barnett (Arnold, London, 2002). Both texts are well written for mathematicians with a basic background; the first is a mathematical book with emphasis in its rigor, and the second touches many related practical aspects of survey sampling in more real contexts.

The Knottnerus book is well written and is also more theoretical. It contains some typographical errors, such as the formulae (4.2) and (4.3) in which the subindex j is omitted (page 78), but in general it is very careful in the text and the formulae.

This book incides more in the mathematical theory than in the practical sample surveys. The author shows very complete statistical knowledges and a laborious conception of his theory, but the new methods for survey practice or applied sampling theory are very limited. The merit of his contribution is in the area of methodological statistical theory, a new theoretical perspective of the actual sample survey theory. However other books in the sampling area that do not offer better theories to be applied in practical studies. The interest of the book, for biometricians, is similar to other sampling theory manuals. Estimation of total productions in agriculture is a special and classical biological application, and its economic consequences, the knowledge or estimation in social welfare, public health, epidemiology, etc. are possible applications of sampling theory to aspects of special human incidence.

Many sampling strategies are treated in the book and revised from a new perspective: stratified sampling, ratio, product and regression estimators, unequal probability sampling, cluster sampling, systematic sampling, complex surveys, multisurvey sampling, variance estimation, etc., and optimization of sampling strategies.

The book serves as a reference textbook in advanced courses for researchers in (bio)statistics and empirical economics. It contains one chapter with the main results from statistics and regression analysis, and requires calculus and matrix algebra as prerequisites for its contents to be accessible the readers.

The author, Paul Knottnerus, has a Ph.D. in economics (1989) from the University of Amsterdam, and he joined Statistics Netherlands in 1995. His book *Sample Survey Theory* is a novel revision of the classical sampling theory of surveys, and contains many interesting ideas and equations of interest for any sampler or mathematician interested in this practical important branch of statistical knowledge.

M. Ruiz Espejo
Universidad Nacional de Educación a Distancia
and Universidad Pontificia de Salamanca, Spain

MISHRA, S. N., SINHA, B. K., and SABNIS, S. V. (guest editors) **American Journal of Mathematical and Management Sciences, Vol. 22(2002) Nos. 3&4**. American Sciences Press, 2002. 216 pp. US$7.00, ISSN 0196-6324.

This volume contains selected refereed papers from the SCRA 2000–FIM VII conference in Bombay in 2000.

There are two contributions honoring Professor Shanti S. Gupta (Purdue University, U.S.A.) and Professor V. K. Srivastava (University of Lucknow, India, who passed away on September 23, 2001).

The scientific papers are as follows:

Small cones of oriented semi-metrics (M. Deza, M. Dutour, E. Panteleeva): For polyhedral convex cones with oriented multi-cuts on n points the number of facets and of extreme rays are calculated.

The induced partial order on the set of finite subsets of a partial ordered set (N.-M. Singhi, G. R. Vijayakumar): There is introduced a partial order in the set of all finite subsets of a partially ordered set X. The interrelations of both orders are studied.

Power comparisons of solutions to the Behrens-Fisher problem (P. Singh, K. K. Saxena, O. P. Srivastava): The powers of the Welch test, the Cochran-Cox test and the Saxena-Srivastava test are compared.

An approach to geographic information system (GIS) based spatial sampling procedures for environmental studies in agriculture (T. Ahmad, A. Rai): The effect of stratified and clustered sampling is studied.

On the distribution of flatness (R. Dasgupta): The distribution of flatness may follow an extreme value distribution.

A revisit to the application of weighted mixed regression estimation in linear models with missing data (H. Toutenburg, V. K. Srivastava): MSE-superiority conditions for the weighted mixed regression estimator over the complete case estimator are given.

On strong and weak confounding in a complex system: characterization and examples (M. Pal, G. Chattopadhyay): Conditions for distributional and mean equivalence of a bivariate joint distribution are considered.

Planning and analysis of data influenced by two factors in self-relocating design (A. Dharmadhikari): The paper considers the performance of m brands in n environments including interaction.

Testing of the parameters of a right truncated exponential distribution (U. J. Dixit, V. U. Dixit): There are given optimum tests of hypotheses about the truncation point and a scale parameter of RTED.

A class of selection procedures based on sample quasi-ranges (P. Singh, A. N. Gill, S. N. Mishra): In a class of k independent exponential distributions the quasi-range of the k location parameters is a measure of the dispersion. A selection procedure is proposed to define a subset which contains a population corresponding to the least location parameter with a defined probability.

Circumventing social desirability response bias in personal interview surveys (S. Gupta, B. Thornton): The paper recommends a partial randomization response technique to reduce bias and nonresponse effects due to social desirability.

H. Toutenburg
Institute for Statistics
University of Munich, Germany

FERNANDEZ, G. **Data Minings Using SAS applications.** Chapman & Hall/CRC, Boca Raton, Florida, 2003. xv + 367 pp. US$79.95. ISBN 1-58488-345-6.

Data mining sometimes is regarded as the magic tool that uncovers valuable information in large databases without need for a deeper knowledge on a) the business/research background, b) the data at hand, and c) methods used to analyze the data. The daily business of data mining, however, is quite different. As in real mining, hard work and powerful tools are necessary for finding the diamonds. This means that beyond other things data have to be cleaned and prepared for mining, appropriate steps for validation of the final models have to be taken and last but not least appropriate and sophisticated methods for analyzing the data have to be applied, many of which are standard techniques in statistics. Although most of the functionality needed to perform these steps is readily available in standard statistical software packages such as SAS, for many researchers this may just be too cumbersome or the necessary skills and training are not available. The unmet needs have led to the development of a large number of data mining tools, both from the major vendors of statistical software and from other vendors. The high license fees of these packages prevent the wide use of data mining in areas where standard packages are available. George Fernandez aims at filling this gap, especially for those analysts who already have access to SAS software.

The main objective of this book is to provide a suite of SAS macros that enable an analyst with no or limited SAS programming experience to perform a complete analysis based on methods available in standard SAS modules such as SAS/CORE, SAS/BASE, SAS/STAT, SAS/GRAPH, and, at least for some analyses, SAS/IML. After a brief introduction the five main chapters deal with preparation of data, exploratory data analysis, and various methods used for unsupervised as well as supervised learning. Each of these chapters provides a basic-level description of the context and introduces statistical concepts and methods. Next, a detailed documentation of one or more macros is given. The application of these 13 macros is illustrated by means of sample data sets and case studies, which are accompanied by a further discussion and interpretation of the results. The macros cover standard statistical approaches for describing and analyzing data, ranging from summary statistics to classification methods. In addition, sampling techniques to support model validation are covered. The final chapter, titled "Emerging Technologies in Data Mining," briefly introduces concepts like data warehousing, artificial neural networks, and market basket association analysis.

Overall, the book serves to a large extent as a well-written and well-documented user manual for the macros provided by the author. These macros are available either on a companion CD-ROM, which is sold separately for additional US$79.95, or via the Internet. For the latter approach, an active Internet connection is required to the SAS macros. It should be noted that these macros do not only read the most recent version of themselves but also attempt to write the user's IP address and some additional information to a file on the author's server.

The main target users apparently are analysts who are used to working with large but simple Excel spreadsheets and are looking for black box tools to perform at least some data mining steps without purchasing an expensive data mining tool such as SAS Enterprise Miner. For most biomedical applications, however, the data structures are commonly more complicated and additional steps are required to construct an

input data set, which fulfills the requirement of the macros. Thus, additional data transformation and manipulation steps are necessary and the statements that "no SAS programming experience is required" and that "complete analysis can be performed in less than 10 minutes" are way too optimistic. In addition, those analysts who deem documentation of their work critical should consider also purchasing the companion CD-ROM, which may provide full documentation of the macros.

J. Kübler
Bayer AG, Pharmaceutical Division
Integrated Analyses
Wuppertal, Germany

BRIEF REPORTS BY THE EDITOR

COLLETT, D. **Modelling Survival Data in Medical Research, 2nd edition.** Chapman & Hall, Boca Raton, Florida, 2003. 408 pp. US$59.95/£29.99/EUR 45.23. ISBN 1-58488-325-1.

This substantially revised and updated second edition is of particular merit especially for practicing statisticians working in the pharmaceutical industry and medical research institutes. It can, however, also be recommended to lecturers teaching courses in survival analysis or to students attending undergraduate or postgraduate courses. An introduction to survival analysis is followed by chapters, among others, on the Cox and the Weibull proportional hazards model, on methods for model checking, on a more detailed treatment of accelerated failure time models and interval-censored data, and on models with time-dependent variables. Numerous illustrative examples are provided with additional data sets in an appendix which may serve for instance as student exercises. All data sets presented in this book are available in electronic form from the publisher's website as well as from the author's website. The use of computer software for survival analysis is demonstrated where focus is now on SAS, in contrast to the first edition reviewed in *Biometrics* **50,** pp. 1230–1231, where also the facilities for survival analysis of other packages were reviewed, which is no longer feasible due to the increased number of software packages offering tools for analyzing survival data.

GENTLE, J. E. **Random Number Generation and Monte Carlo Methods, 2nd edition.** Springer, New York, 2003. xv + 381 pp. US$79.95/EUR 70.22. ISBN 0-387-00178-6.

Only five years after its first publication, favorably reviewed in detail in *Biometrics* **55,** pp. 666-667, the second edition of this book has been published. Due to the increasing power of computers, the use of Monte Carlo methods and simulation has become more feasible and has influenced the analytical techniques used for instance in statistics. Methods like Markov chain Monte Carlo and resampling techniques have become popular. This new edition covers new advances in the field of random number generation and Monte Carlo methods where still "the emphasis is on methods that work." It contains many examples which assume knowledge of programming in Fortran or C. In addition, S-Plus, R, Matlab, or Maple should be available. In addition, an extensive list of references is given. The book could be regarded as a reference, but also as a textbook to be used as primary text for courses in statistical computing or as supplementary text for courses on more specialized statistical techniques that rely on simulations. Helpful instructions how to work through the contents of the book, are given by the author in the preface.

GREEN, S., BENEDETTI, J., and CROWLEY, J. **Clinical Trials in Oncology, 2nd edition.** Chapman & Hall/CRC, Boca Raton, Florida, 2003. xii + 265 pp. US$79.95. ISBN 1-58488-302-2.

Starting with a description of the history of clinical trials and of the background of this book, the authors first give a summary of the most important statistical concepts in the context of clinical trials. The subsequent chapters cover all aspects related to the planning, conduct, and analysis of clinical trials without dwelling on the technical details. Thus, the chapters deal with the design of clinical trails with a new section on recent developments in Phase I studies, multi-arm trials, interim analyses, aspects of data management and quality control, reporting of results, and exploratory analyses including a new section on microarrays and the challenging tasks of analyzing such huge data sets. The authors also work out the major pitfalls inherent in the different steps of a clinical trial. The authors' personal experience makes the book highly valuable. The examples they use throughout the book are real-world trials provided by the Southwest Oncology Group, where it is worthwhile to mention that although the focus of the book is on clinical trials in cancer research the concepts discussed are relevant in any clinical setting.

JONES, B. and KENWARD, M. G. **The Design and Analysis of Cross-Over Trials, 2nd edition.** Chapman & Hall, Boca Raton, Florida, 2003. xxv + 382 pp. US$79.95. ISBN 0-412-60640-2.

The first edition of this book was recommended in its review in *Biometrics* **47,** p. 787, to any medical statistician thinking of analyzing such data. Since cross-over trials have gained in importance and their use has grown rapidly, quite a number of new and major developments can be found in the literature which have also influenced the practice of such trials. Hence, this new edition picks up these new developments insofar as they are relevant from a practical perspective but without changing the overall structure of the first edition. This is especially true for the chapter extensively treating 2×2 cross-over trials, which has been further expanded for instance regarding nonparametric analyses and simple analyses for binary data. The main change from the first edition is, however, the inclusion of three new chapters. Two chapters are

devoted to recently developed methods for analysing continuous and categorical dependent data. The increasing interest in bioequivalence trials has been reflected in an entirely new chapter on this topic. As in the first edition, numerous examples from real trials are presented to illustrate the various techniques throughout the book and to demonstrate analyses performed with different computer packages such as SAS, Splus, Stata, StatXact, and WinBUGS, just to mention a few.

MEAD, R., CURNOW, R. N., and HASTED, A. M. **Statistical Methods in Agriculture and Experimental Biology, 3rd edition.** Chapman & Hall, Boca Raton, Florida, 2003. xvi + 472 pp. US$54.95. ISBN 1-58488-187-9.

Twenty years after its first edition, which was reviewed in *Biometrics* **40,** p. 278, and about 10 years after the second edition, the expanded third edition of this valuable book has been published. It now describes in addition methods for analyzing various types of data and how they can be graphically displayed. It covers the analysis of mixed cropping experiments and on-farm experiments. One chapter is especially devoted to techniques for analyzing multivariate data. It is noteworthy to mention that although the authors discuss computer packages and the kind of information which is required for input and which information may be reasonably expected from their use, they still present many worked examples which help the reader to better understand the different steps of a specific analysis and what is being assumed.