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Analysis of longitudinal data. 2nd ed. (English) [Zbl 1031.62002](#)

Oxford Statistical Science Series. 25. Oxford: Oxford University Press. xv, 379 p. (2003).

This book describes statistical models and methods for the analysis of longitudinal data, with strong emphasis on applications in biological and health sciences. The technical level of the book is roughly that of a first year postgraduate course in statistics. Readers with interests across a wide spectrum of application areas will find the ideas relevant and interesting. The book is organized as follows.

The first three chapters provide an introduction to the subject, and cover basic issues of design and exploratory analysis. Chapters 4, 5, and 6 develop linear models and associated statistical methods for data sets in which the response variable is a continuous measurement. Chapters 7 to 11 are concerned with generalized linear models for discrete response variables. Chapter 12 discusses the issues which arise when a variable which we wish to use as an explanatory variable in a longitudinal regression model is, in fact, a stochastic process which may interact with the response process in complex ways. Chapter 13 considers how to deal with missing values in longitudinal studies, with a focus on attrition or dropout, that is the premature germination of the intended sequences of measurements on some subjects. Chapter 14 gives a brief account of a number of additional topics. Appendix A is a short review of the statistical background assumed in the main body of the book. The software is not discussed explicitly in the book.

Concerning the changes from the first edition, the authors have made a number of more substantial changes to the text. In particular, the chapter on missing values is now about three times the length of its counterpart in the first edition. Aside that, three new chapters are added which reflect recent methodological developments. Most of the data sets used in the book are in the public domain, and can be downloaded either from the first or the second author's web-site. The book is readable and well written. It belongs to the possession of every statistician who encounters longitudinal data.

Reviewer: [Jaromir Antoch \(Praha\)](#)

MSC:

- [62-01](#) Introductory exposition (textbooks, tutorial papers, etc.) pertaining to statistics
- [62P99](#) Applications of statistics
- [62J12](#) Generalized linear models (logistic models)

Cited in 5 Reviews Cited in 136 Documents
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Keywords:

[longitudinal data](#); [general linear models](#); [ANOVA](#); [random effect models](#); [time dependent covariates](#); [missing data](#)