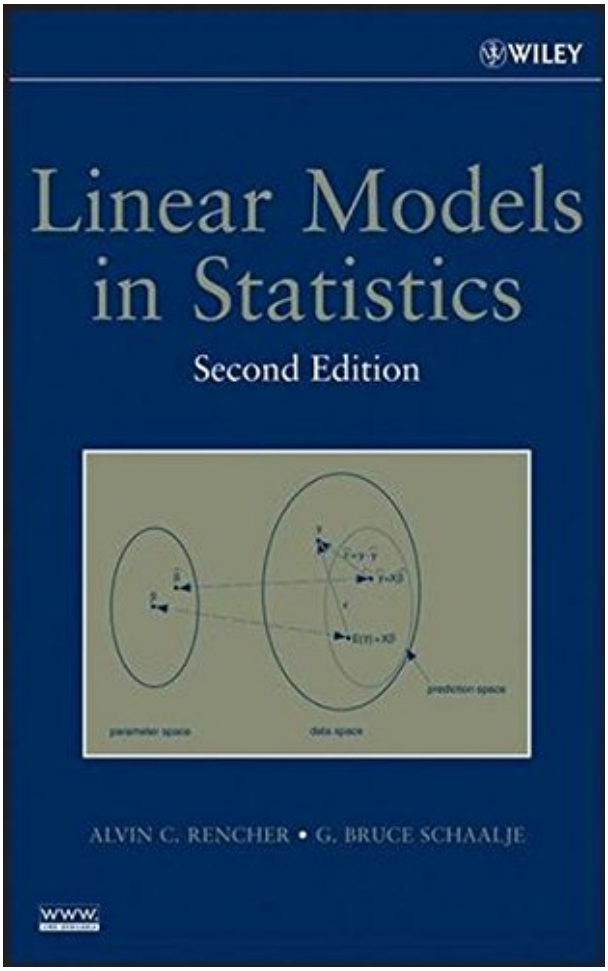
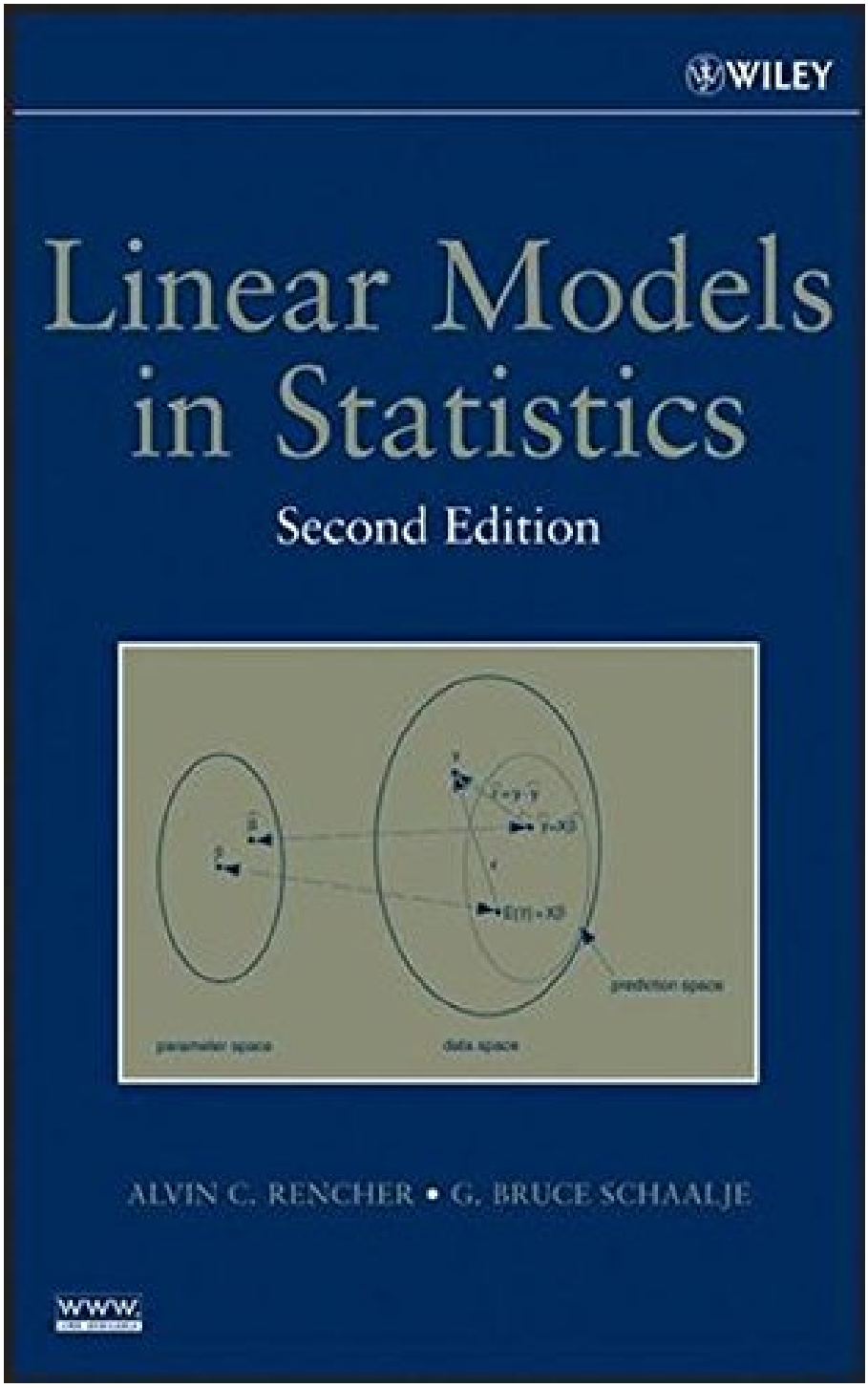
LINEAR MODELS IN STATISTICS BY ALVIN C. RENCHER, G. BRUCE SCHAALJE





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Review

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From the Back Cover

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Most helpful customer reviews

7 of 7 people found the following review helpful.
Good (not great) explanations, poor proofs, decent coverage
By Leicester Dedlock
Second year Ph.D. student at Iowa State University

This book was used in one of my Master's level courses. The book was appropriate. There are easier textbooks out there which may be more appropriate for undergraduates (although juniors and seniors would probably be able to handle this one) and there are more rigorous textbooks out there which may be more appropriate for Ph.D. level classes.

Omissions:
This book provides decent coverage of linear regression and ANOVA models, primarily from a theoretical matrix-based perspective, but it only covers extensions such as generalized linear models rather briefly. Topics such as GLM and logistic regression are important (even if they're not "pure" linear models topics), so the limited coverage was disappointing (which may be why my teacher required FOUR textbooks for the class). I was also disappointed with the limited coverage of diagnostics. It is discussed, but only briefly and it omits some important diagnostics. Also, though it isn't totally atypical for a linear models book that doesn't include "R" in the title, it doesn't integrate computing. This book also lacks anything related to non-parametrics.

Explanations and examples:
Aside from what I mentioned in 'omissions', this book covers just about everything else you would expect from an introductory linear models textbook (including a surprising long review of linear algebra) and it does so fairly well. The explanations are generally clear, but not always crystal clear. Graduate students should be able to follow it fairly easily, but undergraduates who don't yet have a strong statistics and mathematics background may have some difficulty, but I doubt too much. The book also does a good job at mixing mathematical rigor with simple explanations in plain English. However, it's a theory book, so don't expect to attain a full laymen's understanding from this book. What you mostly get is the dirty details explained rather well. Of further note, the examples in the book generally do a good job at furthering understanding of the material.

Proofs:
Very, very bad. For many theorems they simply tell you what book to look up the proof in. At least they're nice enough to give you a page number. Also, they over-cite theorems. Many times they simply list some theorems for which the proof would be derived and they don't even bother explaining how to piece these things together.
Theorem Z's proof:

This result follows from Theorem X and Theorem Y.
Theorem X's proof:
See Graybill (1976, p. 126).
Theorem Y's proof:
This result follows from Theorem A, Theorem B and Wang and Chow(1994, pp. 161-163).

Wow, how helpful.

Exercises:
Overall, they are relevant proofs of varying difficulty. They mix easy problems with hard ones, but I would say that problems are not often overly difficult. Most exercises are perfect for graduate students and an instructor could pick out a fair number of problems that are appropriate for undergraduates. Also, the problem set at the end of each chapter usually does a good job at covering most of the important items.
Note: the solutions to all of the homework problems are in the back of the book. Fortunately, they are not as lazy about these proofs as they are about the other proofs.

Overall, it's a decent matrix-based linear models book with an intermediate level of rigor.

3 of 4 people found the following review helpful.
A clearly written book, sometimes lacking rigor
By A Customer
Rencher's Linear Model in Statistics provides a good overview of regression and ANOVA theory in terms of linear models. Most concepts are presented in an extremely clear format - probably more so than most theory of linear model books I've seen. Moreover, for those who haven't taken linear algebra for awhile, the book provides a nice review of the basic concepts needed for most of the proofs throughout the book. Sometimes, however, (and I'm speaking as a graduate student in statistics) some of the proofs are not as rigorous as I'd like. Sometimes assumptions are made that are neither clear intuitively nor derived specifically from previously stated (and proved) theorems. The book may be a good guide for those learning the material on their own since it contains all solutions to homework problems in the back. For the same reason, it may not be the best book for a college course.

0 of 0 people found the following review helpful.
Grat textbook on this subject
By Christian Ponce
I started reading this book from the very first page, and when I got to the third chapter, I began to find minor mistakes in formulas, like (y-\mu') instead of (y-\mu)' (i.e., transpose is in the wrong place), jj'jj' instead of (1/n)jj'jj' (somebody forgot to divide by "n").

Great content, but I don't give it five stars because I expect to find less mistakes in a classical book like this.

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