

## A Beginner's Guide to Structural Equation Modeling: Fourth Edition

By Randall E. Schumacker, Richard G. Lomax



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Noted for its crystal clear explanations, this book is considered the most comprehensive introductory text to structural equation modeling (SEM). Noted for its thorough review of basic concepts *and* a wide variety of models, this book better prepares readers to apply SEM to a variety of research questions. Programming details and the use of algebra are kept to a minimum to help readers easily grasp the concepts so they can conduct their own analysis and critique related research. Featuring a greater emphasis on statistical power and model validation than other texts, each chapter features key concepts, examples from various disciplines, tables and figures, a summary, and exercises.

Highlights of the extensively revised 4<sup>th</sup> edition include:

-Uses different SEM software (not just Lisrel) including Amos, EQS, LISREL, Mplus, and R to demonstrate applications.

-Detailed introduction to the statistical methods related to SEM including correlation, regression, and factor analysis to maximize understanding (Chs. 1 – 6).

-The 5 step approach to modeling data (specification, identification, estimation, testing, and modification) is now covered in more detail and prior to the modeling chapters to provide a more coherent view of how to create models and interpret results (ch. 7).

-More discussion of hypothesis testing, power, sampling, effect sizes, and model fit, critical topics for beginning modelers (ch. 7).

- Each model chapter now focuses on one technique to enhance understanding by providing more description, assumptions, and interpretation of results, and an exercise related to analysis and output (Chs. 8 -15).

-The use of SPSS AMOS diagrams to describe the theoretical models.

-The key features of each of the software packages (Ch. 1).

-Guidelines for reporting SEM research (Ch. 16).

-<u>www.routledge.com/9781138811935</u> which provides access to data sets that can be used with any program, links to other SEM examples, related readings, and journal articles, and more.

Reorganized, the new edition begins with a more detailed introduction to SEM including the various software packages available, followed by chapters on data entry and editing, and correlation which is critical to understanding how missing data, non-normality, measurement, and restriction of range in scores affects SEM analysis. Multiple regression, path, and factor models are then reviewed and exploratory and confirmatory factor analysis is introduced. These chapters demonstrate how observed variables share variance in defining a latent variables and introduce how measurement error can be removed from observed variables. Chapter 7 details the 5 SEM modeling steps including model specification, identification, estimation, testing, and modification along with a discussion of hypothesis testing and the related issues of power, and sample and effect sizes. Chapters 8 to 15 provide comprehensive introductions to different SEM models including Multiple Group, Second-Order CFA, Dynamic Factor, Multiple-Indicator Multiple-Cause, Mixed Variable and Mixture, Multi-Level, Latent Growth, and SEM Interaction Models.? Each of the 5 SEM modeling steps is explained for each model along with an application.? Chapter exercises provide practice with and enhance understanding of the analysis of each model. The book concludes with a review of SEM guidelines for reporting research.?

Designed for introductory graduate courses in structural equation modeling, factor analysis, advanced, multivariate, or applied statistics, quantitative techniques, or statistics II taught in psychology, education, business, and the social and healthcare sciences, this practical book also appeals to researchers in these disciplines. Prerequisites include an introduction to intermediate statistics that covers correlation and regression principles.

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#### **Editorial Review**

Review

"Substantial improvements have been incorporated into this new edition, including a focus on individual SEM model applications and illustrations using multiple software platforms. This is a must own for novice and expert SEM users alike." –Tiffany Whittaker, University of Texas at Austin, USA

"Anyone involved in the application of Structural Equation Modeling will definitely treasure this updated edition of a guide now considered a classic. The manual provides a step-by-step pragmatic approach to each type of model and offers extensive information on important issues and techniques not covered in most introductory SEM textbooks." -Greta Mazzetti, University of Bologna, Italy

"This is a simply written, easy to follow book. It effortlessly transitions the learner from the theory of SEM to its applications. It can be used to teach introductory level courses on SEM. I highly recommend it for self-learning." - Kanupriya Katyal, Goa Institute of Management, India

"Schumacker and Lomax provide excellent narratives on the purpose, process, and effective use of numerous SEM techniques and methods. Additionally, I have discovered students and faculty value their texts as trusted academic resources!" - Sean W. Mulvenon, University of Arkansas, USA

"I really like the accessibility of this book. ... Making the new edition more software independent [is] a huge plus. ...The way the authors write was what made me choose this book. ... It was the only book that was a broad overview of SEM ... and accessible to my graduate students. ...Given the changes ...I would consider it for adoption again." – Linda Shanock, University of North Carolina at Charlotte, USA

"The authors write clearly ...by taking an accessible, application-oriented, and non-mathematical approach. Although SEM is an advanced quantitative topic that could easily become very complicated, the book does a great job in making it as simple as possible. ...The book is ...great for ...graduate students taking the first SEM course. ...This book is a classic SEM textbook and has been highly reputable for its breadth of SEM topics (much better than all of its competing titles)."– **Hongwei Yang, University of Kentucky, USA** 

"[I] would ... seriously consider [the 4<sup>th</sup> ed] for adoption ... for the same reasons I ... preferred the 3<sup>rd</sup> ed. over other textbooks: The non-mathematical approach, easy to read, accessibility, [and] the use of the SEM Modeling steps." – **Jos Schijns, Open Universiteit, The Netherlands** 

"This book gives me what I need to get the students going, it well-grounds them in the basics, and it sets up a number of advanced topics that I can elaborate on. ... This book is appropriate for an introductory graduate course on structural equation modeling, or for professionals who want to learn SEM." – Craig Parks, Washington State University, USA

"I would definitely recommend this text to both current graduate students as well as faculty who may not have been exposed to SEM. ... I teach at the graduate level. ... This would be ideal as one of the texts for the course ... in a Criminal Justice department, and ... a Sociology or other Social Science program. ... It covers many important topics." - Brian A. Lawton, George Mason University, USA

#### About the Author

**RANDALL E. SCHUMACKER** is a Professor of Educational Research at The University of Alabama, where he teaches courses in structural equation modeling.

RICHARD G. LOMAX is a Professor in the Department of Educational Studies at The Ohio State University.

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#### **Steven Evans:**

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