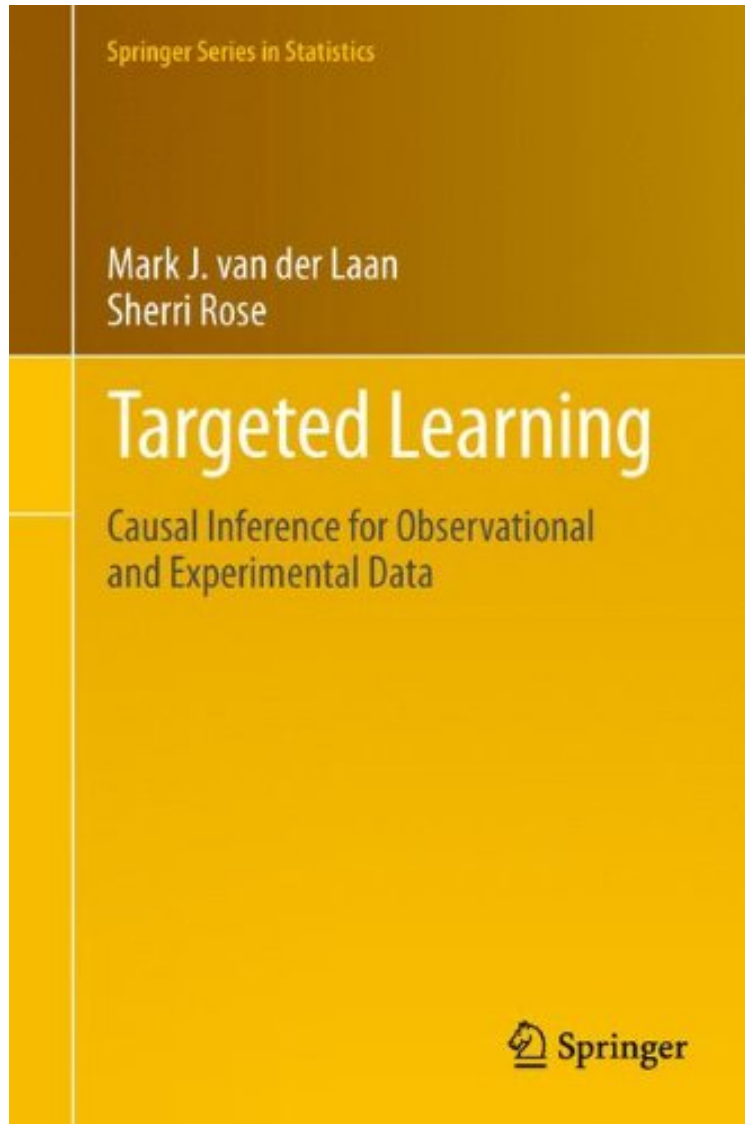


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Targeted Learning: Causal Inference for Observational and Experimental Data (Springer Series in Statistics)

Mark J. van der Laan, Sherri Rose
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Mark J. van der Laan, Sherri Rose : Targeted Learning: Causal Inference for Observational and Experimental Data (Springer Series in Statistics) before purchasing it in order to gauge whether or not it would be worth my time, and all praised Targeted Learning: Causal Inference for Observational and Experimental Data (Springer Series in

Statistics):

Establishes causal inference methodology that incorporates the benefits of machine learning with statistical inference
Presentation combines accessibility with the method's rigorous grounding in statistical theory
Demonstrates targeted learning in epidemiological, medical, and genomic experimental and observational studies that include informative dropout, missingness, time-dependent confounding, and case-control sampling

From the reviews: This book is a timely fit and is expected to draw much attention from researchers in the field of causal inference. The book explains the concept of targeted learning, which is an enhanced procedure for estimating targeted causal estimands under the potential outcome framework. Excellent summaries of complex estimation procedures and methods are ubiquitous, which will be helpful for the nontechnical readers of the book. This book appears to be a useful reference for Ph.D. students in biostatistics programs. (Joseph Kang, *Journal of the American Statistical Association*, June, 2013)

From the Author: When we started writing *Targeted Learning*, we went back and forth debating the level we were trying to target. Should we generate a textbook that was more like an epidemiology text and would be broadly accessible to a greater number of applied readers with less formal statistical training? Should we develop a purely theoretical text that would mostly be of interest to a certain subset of statisticians? Ultimately, we struck a level that is somewhere in between these two extremes. Since there is no other book on targeted learning, we could not escape the inclusion of statistical formalism. However, we also did not want to lose all accessibility for nontheoreticians. This led to a book that begins with six chapters that should be generally readable by most applied researchers familiar with basic statistical concepts and traditional data analysis. The book progresses to more challenging topics and data structures, and follows a recognizable pattern via a road map for targeted learning and the general description of each targeted estimator. Thus, applied readers less interested in why it works and more interested in implementation can tease out those parts. Yet, mathematicians and theoretical statisticians will not get bored, as extensive rigor is included in many chapters, as well as a detailed appendix containing proofs and derivations. Lastly, this book is unique in that it also contains wonderful contributions from multiple invited authors, yet it is not a traditional edited text. As the authors of *Targeted Learning*, we have spent significant time crafting and reworking each of the contributed chapters to have consistent style, content, format, and notation as well as a familiar road map. This yields a truly cohesive book that reads easily as one text. (Adapted from the Preface of *Targeted Learning*.)

From the Back Cover: The statistics profession is at a unique point in history. The need for valid statistical tools is greater than ever; data sets are massive, often measuring hundreds of thousands of measurements for a single subject. The field is ready to move towards clear objective benchmarks under which tools can be evaluated. Targeted learning allows (1) the full generalization and utilization of cross-validation as an estimator selection tool so that the subjective choices made by humans are now made by the machine, and (2) targeting the fitting of the probability distribution of the data toward the target parameter representing the scientific question of interest. This book is aimed at both statisticians and applied researchers interested in causal inference and general effect estimation for observational and experimental data. Part I is an accessible introduction to super learning and the targeted maximum likelihood estimator, including related concepts necessary to understand and apply these methods. Parts II-IX handle complex data structures and topics applied researchers will immediately recognize from their own research, including time-to-event outcomes, direct and indirect effects, positivity violations, case-control studies, censored data, longitudinal data, and genomic studies. "Targeted Learning, by Mark J. van der Laan and Sherri Rose, fills a much needed gap in statistical and causal inference. It protects us from wasting computational, analytical, and data resources on irrelevant aspects of a problem and teaches us how to focus on what is relevant answering questions that researchers truly care about." -Judea Pearl, Computer Science Department, University of California, Los Angeles "In summary, this book should be on the shelf of every investigator who conducts observational research and randomized controlled trials. The concepts and methodology are foundational for causal inference and at the same time stay true to what the data at hand can say about the questions that motivate their collection." -Ira B. Tager, Division of Epidemiology, University of California, Berkeley