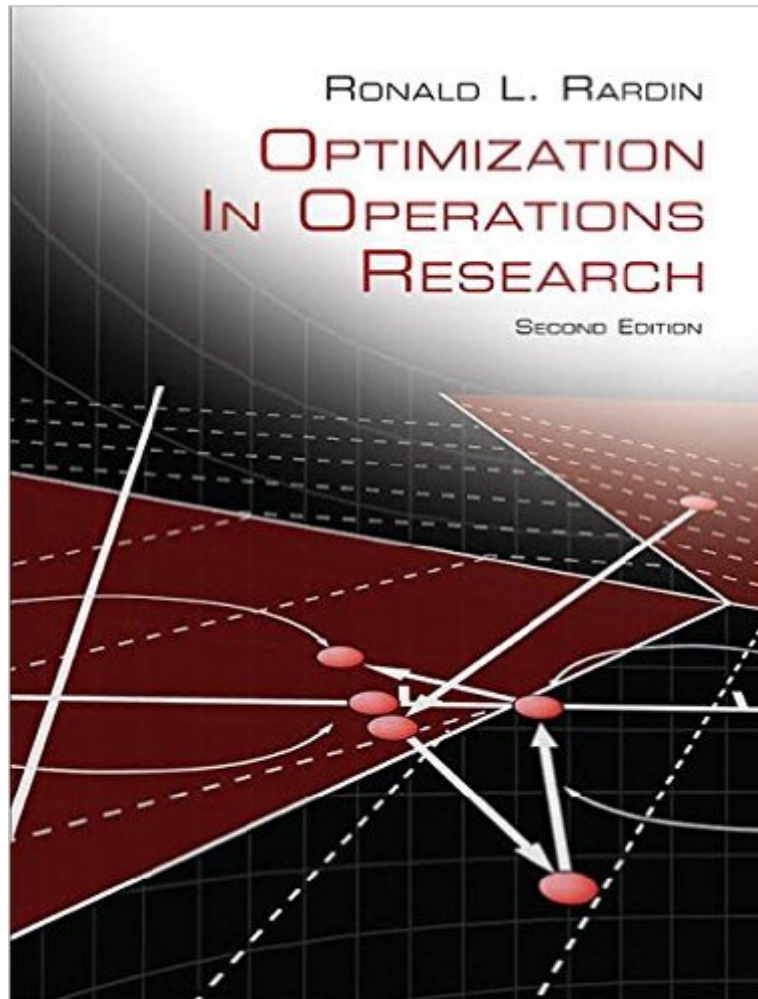


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Optimization In Operations Research (2nd Edition)



Synopsis

Developing skills and intuitions through accessible optimization models and analysis. Rardin's *Optimization in Operations Research*, Second Edition builds on the critically acclaimed first edition published nearly two decades ago and named Book of the Year in 1999 by the Institute of Industrial Engineers. The goal of the Second Edition is to make the tools of optimization modeling and analysis even more widely accessible to advanced undergraduate and beginning graduate students, as well as to researchers and working practitioners who use it as a reference for self-study. The emphasis lies in developing skills and intuitions that students can apply in real settings or later coursework. Like the first, the Second Edition covers the full scope of optimization (mathematical programming), spanning linear, integer, nonlinear, network, and dynamic programming models and algorithms, in both single and multiobjective contexts. New material adds large-scale, stochastic and complexity topics, while broadly deepening mathematical rigor without sacrificing the original's intuitive style. This edition also continues the author's belief that making optimization materials accessible and exciting to readers of diverse backgrounds requires a continuing discourse on optimization modeling. Every algorithm and analytic principle is developed in the context of a brief story, and computational exercises often begin with a formulation step.

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Table of Contents

1. Problem Solving with Mathematical Models
- 2.

Deterministic Optimization Models in Operations Research3. Improving Search4. Linear Programming Models5. Simplex Search for Linear Programming6. Interior Point Methods for Linear Programming7. Duality and Sensitivity in Linear Programming9. Shortest Path and Discrete Dynamic Programming10. Network Flows11. Discrete Optimization Models12. Discrete Optimization Methods13. Unconstrained Nonlinear Programming14. Constrained Nonlinear ProgrammingIf you need more information, Professor Rardin (Purdue University) maintains a website that can be easily located using any web search tool.

I thought there was only one best complete OR book is Hillier and Lieberman (H&L) until I got Rardin's book. Rardin presents the OR in different approach than H&L. The model building part is a little bit better than H&L, but the real meat is the fundamental of optimization. Search technique is well presented from the ground-up. This book can be served as the first book in OR if you're new to OR or the companion book if you know OR or even the first book in optimization in case you don't care to know OR.

I had absolutely no clue about optimization before I read this book. This book not only helped me overcome my diffidence, but also provided me with a very thorough understanding of the basics of the subject. It is extremely difficult to criticize this book in any way. The language is plain English, not the technical jargon which other "introductory" books use. The book does not assume that the reader has a thorough understanding of linear algebra. Only a course in differential and integral calculus will do. The book provides several primers on a lot of topics- matrices, analysis, vectors etc., so that you do not have to interrupt your optimization studies and digress into these subjects. There are three full chapters where the author provides real-life examples of mathematical modeling. Again, these are built up step-by-step, and not shoved down your throat. The different approach to the Simplex Method is more intuitive than the traditional approach and more logical. The basic discussions on integer programming and non-linear programming are also worth mentioning. The numerous exercises and the presence of solutions to a number of them in the end make the text even more helpful. The only somewhat weak point of the text is the chapter on interior point methods, where the book only provides the formulae and states that the derivations are "beyond the scope of the book". But, this is negligible and I recommend the book wholeheartedly.

In my work I needed to find the shortest path from a single point to a set of points. This book really helped me to find the suitable method: the Dijkstra algorithm. I began reading Chapter 9, which is

"Shortest Paths and Discrete Dynamic Programming". The material is presented clearly and with relevant and adequate variety of examples. I haven't read the other chapters since they are not required for my work at this moment and I don't have ample time to make a full review; however, I can say this: My many years in research in several fields have often put me in a position of transferring mathematical algorithms in one field to another or to search for an efficient one. I frequently get a limited time period to do literature search and I usually page-read many books. This is one of the rare books which are easy to read and comprehend. I thank and congratulate the author for doing a wonderful service.

Review after 2 years of using this book: AMAZING BOOK. There has never been a better book (and probably never will be) in explaining OR. Previous Review upon purchase: If you are taking a graduate or an undergraduate course in OR, this book is a must! I have not seen ANY book able to present OR with such simple, direct examples and WITHOUT sacrificing theory. This is the best written textbook I have ever read. When I compare it with the hundreds of dollars I spend on badly written books, even as a PG (poor graduate) student I would gladly pay twice of what this book is priced at.

As far as regards content, this is a fine book. It's a textbook, and it does that job. I am commenting on the horrible cheap production: the publisher has effectively made a photocopy of the hardcover, and is selling it for \$100. The cover is flimsy paper, scuffs and bends easily; the text on the pages is askew; and the contrast in the charts and shading is awful.

Prof. Rardin's Optimization in OR is a great book. However the binding for the book does not do its justice as it is sold as a paperback at the .com. The binding of my copy quickly fell apart. With the kind of the price the book demands and its 900+pages size, it should be a hardback binding.

Rardin was the first book I used for OR and I keep a copy in my personal library. It offers a series of examples that are followed up throughout the book, chapter by chapter, to provide insight into the application of mathematics to real world problems. By building the level of complexity, on an ongoing basis through the use of specific examples, Rardin shows the extremely practical side to why Operations Research is such a fundamental use of applied mathematics. The book is easy to read and should easily meet the needs of any upperlevel undergraduate course in Operations Research.

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