

Bertsekas, D. P.

Nonlinear programming. (English) Zbl 0935.90037
Belmont, MA: Athena Scientific. x, 646 p. (1995).

The book 'Nonlinear Programming' is partitioned into six chapters titled unconstrained optimization, optimization over a convex set, Lagrange multiplier theory, Lagrange multiplier algorithms, duality and convex programming, and dual methods. Additional material is provided in extensive appendices on mathematical background, convex analysis, line search methods and the implementation of Newton's method.

This book contains a wealth of material. In addition to the classical material one would expect to find in a book with this title, this book contains several topics not usually found in comparable textbooks, such as discrete-time optimal control, two-metric projections methods, conjugate functions and Fenchel duality.

Throughout this book, well-prepared graphics illustrate ideas and results. The text contains many examples and each section is followed by set of nice exercises. Each chapter is concluded with notes and sources.

Recently, the second edition of this book has appeared. The second edition is expanded by over 100 pages. Table of contents, preface, and solutions to the exercises in the second edition can be obtained from the publisher's web-page.

Reviewer: [Matthias Heinkenschloß \(Houston\)](#)

MSC:

[90C30](#) Nonlinear programming

[90-02](#) Research exposition (monographs, survey articles) pertaining to operations research and mathematical programming

[65K05](#) Numerical mathematical programming methods

Cited in **2** Reviews
Cited in **338** Documents

Keywords:

[nonlinear programming](#); [unconstrained optimization](#); [Lagrange multiplier](#); [duality](#); [convex programming](#); [dual methods](#); [convex analysis](#); [line search methods](#); [Newton's method](#)