

## RESEÑAS / BOOK REVIEWS

### INTRODUCTION AUX MÉTHODES DE MONTE CARLO AVEC R

Christian Robert and George Casella (2011)

Springer Collection: Pratique R

XII+500

USD59.95

ISBN: 978-2-8178-0180-3

This book will be welcome mainly by the statisticians. It is friendly for them as the authors are coming from the area of Mathematical Statistics. It presents the main tools used commonly in simulation, with statistical purposes, using R: random number generation, Monte Carlo techniques etc. It is remarkable the presentation of Markov Chain Simulation Methods, covering the algorithms of Metropolis-Hastings and Gibbs, including convergence and diagnostics.

If you are in the area of simulation this is a book to have in your library. I specially recommend it to graduate students involved in programming simulation experiments.

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### FOUNDATIONS OF OPTIMIZATION

O. Güler (2010)

Springer

XVII+439

ISBN 978-0-387-34431-7

This book is composed of 14 chapters. They are Differential Calculus, Unconstrained Optimization, Variational Principles, Convex Analysis, Structure of Convex Sets and Functions, Separation of Convex Sets, Convex Polyhedra, Linear Programming, Nonlinear Programming, Structured Optimization Problems, Duality Theory and Convex Programming, Semi-infinite Programming, Topics in Convexity, Three Basic Optimization Algorithms. Hence it covers the core of optimization in finite dimensions. The discussion is mathematically rigorous treatment. The theoretical problems appearing in unconstrained optimization, nonlinear programming, semi-infinite programming and other basic themes in finite-dimensional spaces are studied. The needed elements of differential calculus are given. Therefore the first chapter can be out of a course for mathematically educated students. Similarly convexity and duality in nonlinear programming and the theories of linear inequalities, convex polyhedral and linear programming are presented.

The basics of mathematical programming is presented but advanced topics in optimization as Ekeland's epsilon-variational principle, separation properties of two or more convex sets in general vector spaces, Helly's theorem's applications in optimization are also covered.

Particularly the annexes (Finite Systems of Linear Inequalities in Vector Spaces, Descartes's Rule of Sign and Classical Proofs of the Open Mapping and Graves's) are very helpful for going through some proofs.

More than 200 exercises are proposed and some of them solved.

This is a superb book for courses in optimization at graduate level.

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## **INTRODUCTION TO NONPARAMETRIC ESTIMATION**

Alexandre B Tsybakov. (2009)

Springer USD79.95

XII+ 214

ISBN: 978-0-387-79051-0

The author is well known by his contributions in the theme. This is an English version of the text **Introduction à l'estimation non paramétrique** of the same editorial. It is intended to be used in graduate courses.

The book is divided into 3 chapters. The first one is devoted to placing the basic results on nonparametric regression and density estimators. The second chapter is concerned with the study of minimax lower bounds. The last chapter presents Pinsker's theorem, oracle inequalities, Stein shrinkage, and sharp minimax adaptivity...

It is interesting for people currently investigating in Nonparametric regression, adaptive estimation, density estimation, minimax lower bound, oracle inequality theory or involved in particular issues of Econometrics, Image Processing, Signaling, Communication as well as general theoretical problems of Computer Science

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## **APPLIED SURVEY METHODS: A STATISTICAL PERSPECTIVE**

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Jelke Bethlehem (2009)

Wiley

375

ISBN: 9780470373088

This book must be welcome by applied statisticians as it presents surveying from an application process point of view, going from designing the survey up to publishing the results.

The contents are divided into the following chapters: The Survey Process, Basic Concepts, Questionnaire Design, Single Sampling Designs, Composite Sampling Designs, Estimators, Data Collection, The Quality of the Results, The Nonresponse Problem, Weighting Adjustment, Online Surveys, Statistical Disclosure Control.

It is remarkable the treatment of the issues concerned with designing the questionnaires, the development of inquiries using internet.

This book is needed in the bibliotheca of surveyors.

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