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Introduction to Stochastic Programming - John R. Birge 2006-04-06
This rapidly developing field encompasses many disciplines including operations research, mathematics, and probability. Conversely, it is being applied in a wide variety of subjects ranging from agriculture to financial planning and from industrial engineering to computer networks. This textbook provides a first course in stochastic programming suitable for students with a basic knowledge of linear programming, elementary analysis, and probability. The authors present a broad overview of the main themes and methods of the subject, thus helping students develop an intuition for how to model uncertainty into mathematical problems, what uncertainty changes bring to the decision process, and what techniques help to manage uncertainty in solving the problems. The early chapters introduce some worked examples of stochastic programming, demonstrate how a stochastic model is formally built, develop the properties of stochastic programs and the basic solution techniques used to solve them. The book then goes on to cover approximation and sampling techniques and is rounded off by an in-depth case study. A well-paced and wide-ranging introduction to this subject.

Optimal Inventory Modeling of Systems - Craig C. Sherbrooke 2006-04-11

Most books on inventory theory use the item approach to determine stock levels, ignoring the impact of unit cost, echelon location, and hardware indenture. Optimal Inventory Modeling of Systems is the first book to take the system approach to inventory modeling. The result has been dramatic reductions in the resources to operate many systems - fleets of aircraft, ships, telecommunications networks, electric utilities, and the space station. Although only four chapters and appendices are totally new in this edition, extensive revisions have been made in all chapters, adding numerous worked-out examples. Many new applications have been added including commercial airlines, experience gained during Desert Storm, and adoption of the Windows interface as a standard for personal computer models.

Applied Operational Research with SAS - Ali Emrouznejad 2011-12-13

Using a wide range of operational research (OR) optimization examples, Applied Operational Research with SAS demonstrates how the OR procedures in SAS work. The book is one of the first to extensively cover the application of SAS procedures to OR problems, such as single criterion optimization, project management decisions, printed circuit board assembly, and multiple criteria decision making. The text begins with the algorithms and methods for linear programming, integer linear programming, and goal programming models. It then describes the principles of several OR procedures in SAS. Subsequent chapters explain how to use these procedures to solve various types of OR problems. Each of these chapters describes the concept of an OR problem, presents an example of the problem, and discusses the specific procedure and its macros for the optimal solution of the problem. The macros include data handling, model building, and report writing. While primarily designed for SAS users in OR and marketing analytics, the book can also be used by readers interested in mathematical modeling techniques. By formulating the OR problems as mathematical models, the authors show how SAS can solve a variety of optimization problems.

Models & Methods for Project Selection - Samuel B. Graves 2012-12-06

Models & Methods for Project Selection systematically examines in this book treatment the latest work in the field of project selection modeling. The models presented are drawn from mathematical programming, decision theory, and finance. These models are examined in two categorical streams: the management science stream and the financial model stream. The book describes the assumptions and limitations of

each model and provides appropriate solution methodologies. Its organization follows three main themes: *Criteria for Choice: Chapters 1-3 investigate the effect of the choice of optimization criteria on the results of the portfolio optimization problem. *Risk and Uncertainty: Chapters 4-7 deal with uncertainty in the project selection problem. *Non-Linearity and Interdependence: These chapters deal with problems of non-linearity and interdependence as they arise in the project selection problem. Chapters 8, 9 and 10 present solution methodologies, which can be used to solve these most general project selection models.

Supply Chain Engineering - A. Ravi Ravindran 2016-04-19

Winner of 2013 IIE/Joint Publishers Book-of-the-Year Award Emphasizing a quantitative approach, Supply Chain Engineering: Models and Applications provides state-of-the-art mathematical models, concepts, and solution methods important in the design, control, operation, and management of global supply chains. The text provides an understanding of

Operations Research - Jay E. Aronson 2008-04

Papers by leading theorists in operations research.

Operations Research and Health Care - Margaret L. Brandeau 2006-04-05

In both rich and poor nations, public resources for health care are inadequate to meet demand. Policy makers and health care providers must determine how to provide the most effective health care to citizens using the limited resources that are available. This chapter describes current and future challenges in the delivery of health care, and outlines the role that operations research (OR) models can play in helping to solve those problems. The chapter concludes with an overview of this book - its intended audience, the areas covered, and a description of the subsequent chapters. KEY WORDS Health care delivery, Health care planning HEALTH CARE DELIVERY: PROBLEMS AND CHALLENGES 3 1.1 WORLDWIDE HEALTH: THE PAST 50 YEARS Human health has improved significantly in the last 50 years. In 1950, global life expectancy was 46 years [1]. That figure rose to 61 years by 1980 and to 67 years by 1998 [2]. Much of these gains occurred in low- and middle-income countries, and were due in large part to improved nutrition and sanitation, medical innovations, and improvements in public health infrastructure.

Handbook of Military and Defense Operations Research - Natalie M. Scala 2020-02-10

Operations research (OR) is a core discipline in military and defense management. Coming to the forefront initially during World War II, OR provided critical contributions to logistics, supply chains, and strategic simulation, while enabling superior decision-making for Allied forces. OR has grown to include analytics and many applications, including artificial intelligence, cybersecurity, and big data, and is the cornerstone of management science in manufacturing, marketing, telecommunications, and many other fields. The Handbook of Military and Defense Operations Research presents the voices leading OR and analytics to new heights in security through research, practical applications, case studies, and lessons learned in the field. Features Applies the experiences of educators and practitioners working in the field Employs the latest technology developments in case studies and applications Identifies best practices unique to the military, security, and national defense problem space Highlights similarities and dichotomies between analyses and trends that are unique to military, security, and defense problems

Models, Methods, Concepts & Applications of the Analytic Hierarchy Process - Thomas L. Saaty 2012-04-11

The Analytic Hierarchy Process (AHP) is a prominent and powerful tool for making decisions in situations involving multiple objectives. Models, Methods, Concepts and Applications of the Analytic Hierarchy Process,

2nd Edition applies the AHP in order to solve problems focused on the following three themes: economics, the social sciences, and the linking of measurement with human values. For economists, the AHP offers a substantially different approach to dealing with economic problems through ratio scales. Psychologists and political scientists can use the methodology to quantify and derive measurements for intangibles. Meanwhile researchers in the physical and engineering sciences can apply the AHP methods to help resolve the conflicts between hard measurement data and human values. Throughout the book, each of these topics is explored utilizing real life models and examples, relevant to problems in today's society. This new edition has been updated and includes five new chapters that includes discussions of the following: - The eigenvector and why it is necessary - A summary of ongoing research in the Middle East that brings together Israeli and Palestinian scholars to develop concessions from both parties - A look at the Medicare Crisis and how AHP can be used to understand the problems and help develop ideas to solve them.

Modelling in Mathematical Programming - JoseÌ Manuel Garcìa a SaÌ nchez 2021

This book provides basic tools for learning how to model in mathematical programming, from models without much complexity to complex system models. It presents a unique methodology for the building of an integral mathematical model, as well as new techniques that help build under own criteria. It allows readers to structure models from the elements and variables to the constraints, a basic modelling guide for any system with a new scheme of variables, a classification of constraints and also a set of rules to model specifications stated as logical propositions, helping to better understand models already existing in the literature. It also presents the modelling of all possible objectives that may arise in optimization problems regarding the variables values. The book is structured to guide the reader in an orderly manner, learning of the components that the methodology establishes in an optimization problem. The system includes the elements, which are all the actors that participate in the system, decision activities that occur in the system, calculations based on the decision activities, specifications such as regulations, impositions or actions of defined value and objective criterion, which guides the resolution of the system.

Models and Methods for Management Science - Hao Zhang 2022-09-06

This textbook introduces systems science as an entry point to present a basic introduction to research models and methods in management science (operation research). This textbook selects the classic quantitative models and methods as well as rich cases and detailed examples, which are suitable for students with a certain management and economics knowledge for further study, and helps to develop the abilities of using the basic models in real life.

Introduction to Operations Research - Frederick S. Hillier 2021

"Introduction to Operations Research is the worldwide gold standard for textbooks in operations research. This famous text, around since the early days of the field, has grown into a contemporary 21st century eleventh edition with the infusion of new state-of-the-art content."--

Foundations and Methods of Stochastic Simulation - Barry Nelson 2013-01-31

This graduate-level text covers modeling, programming and analysis of simulation experiments and provides a rigorous treatment of the foundations of simulation and why it works. It introduces object-oriented programming for simulation, covers both the probabilistic and statistical basis for simulation in a rigorous but accessible manner (providing all necessary background material); and provides a modern treatment of experiment design and analysis that goes beyond classical statistics. The book emphasizes essential foundations throughout, rather than providing a compendium of algorithms and theorems and prepares the reader to use simulation in research as well as practice. The book is a rigorous, but concise treatment, emphasizing lasting principles but also providing specific training in modeling, programming and analysis. In addition to teaching readers how to do simulation, it also prepares them to use simulation in their research; no other book does this. An online solutions manual for end of chapter exercises is also be provided.

Operations Research - Wayne L. Winston 1987

Operations Research and Management Science Handbook - A. Ravi Ravindran 2016-04-19

Operations Research (OR) began as an interdisciplinary activity to solve complex military problems during World War II. Utilizing principles from mathematics, engineering, business, computer science, economics, and statistics, OR has developed into a full fledged academic discipline with

practical application in business, industry, government and military. Currently regarded as a body of established mathematical models and methods essential to solving complicated management issues, OR provides quantitative analysis of problems from which managers can make objective decisions. Operations Research and Management Science (OR/MS) methodologies continue to flourish in numerous decision making fields. Featuring a mix of international authors, Operations Research and Management Science Handbook combines OR/MS models, methods, and applications into one comprehensive, yet concise volume. The first resource to reach for when confronting OR/MS difficulties, this text - Provides a single source guide in OR/MS Bridges theory and practice Covers all topics relevant to OR/MS Offers a quick reference guide for students, researchers and practitioners Contains unified and up-to-date coverage designed and edited with non-experts in mind Discusses software availability for all OR/MS techniques Includes contributions from a mix of domestic and international experts The 26 chapters in the handbook are divided into two parts. Part I contains 14 chapters that cover the fundamental OR/MS models and methods. Each chapter gives an overview of a particular OR/MS model, its solution methods and illustrates successful applications. Part II of the handbook contains 11 chapters discussing the OR/MS applications in specific areas. They include airlines, e-commerce, energy systems, finance, military, production systems, project management, quality control, reliability, supply chain management and water resources. Part II ends with a chapter on the future of OR/MS applications.

Intelligent Systems in Operations: Methods, Models and Applications in the Supply Chain - Nag, Barin 2010-03-31

"This book provides knowledge and insights on present and future AI applications in Operations Management presenting tools and decisions in terms of theoretical and empirical models, methods and proposed applications"--Provided by publisher.

Operations Research Methodologies - A. Ravi Ravindran 2008-11-12

A single source guide to operations research (OR) techniques, this book covers emerging OR methodologies in a clear, concise, and unified manner. Building a bridge between theory and practice, it begins with coverage of fundamental models and methods such as linear, nonlinear, integer, and dynamic programming, networks, simulation, queuing, inventory, stochastic processes, and decision analysis. The book then explores emerging techniques including multiple criteria optimization, meta heuristics, robust optimization, and complexity and large scale networks. Each chapter gives an overview of a particular methodology, illustrates successful applications, and provides references to computer software availability.

Operations Research - Jay E. Aronson 1998

Drawn from a conference honoring Gerald L. Thompson, the pioneer of operations research, this volume brings together some of the latest writings of major figures in the field. Their essays concentrate on linear and nonlinear optimization, network and integer programming, and applications-oriented research in manufacturing.

Operations Research - Amit Kumar 2022

"This era of science and engineering has attracted researchers tasked with evaluating performance and optimization of problems in the field of operations research. The book covers mathematical analysis, methods and applications involving processes such as system performance, optimization, inventory theory, reliability theory, and queueing theory. Operations Research: Methods, Techniques, and Advancements explores recent and innovative methods and advancements associated with the mathematical theory of operations research. It offers a detailed overview of mathematical modelling for general industrial systems and emphasizes the latest ideas for the benefit of society and the research community. Intended for a broad range of readers, this book is useful to academicians, industrialists, researchers, students, academia and specialists from various disciplines and those working in the industry"--

Student's Guide to Operations Research - Paul A. Jensen 1986

Encyclopedia of Operations Research and Management Science - Saul I. Gass 2012-12-06

Operations Research: 1934-1941," 35, 1, 143-152; "British The goal of the Encyclopedia of Operations Research and Operational Research in World War II," 35, 3, 453-470; Management Science is to provide to decision makers and "U. S. Operations Research in World War II," 35, 6, 910-925; problem solvers in business, industry, government and and the 1984 article by Harold Lardner that appeared in academia a comprehensive overview of the wide range of Operations Research: "The Origin of Operational Research," ideas, methodologies, and synergistic

forces that combine to 32, 2, 465-475. form the preeminent decision-aiding fields of operations research and management science (OR/MS). To this end, we The Encyclopedia contains no entries that define the fields enlisted a distinguished international group of academics of operations research and management science. OR and MS and practitioners to contribute articles on subjects for are often equated to one another. If one defines them by the which they are renowned. methodologies they employ, the equation would probably The editors, working with the Encyclopedia's Editorial stand inspection. If one defines them by their historical Advisory Board, surveyed and divided OR/MS into specific developments and the classes of problems they encompass, topics that collectively encompass the foundations, applica the equation becomes fuzzy. The formalism OR grew out of tions, and emerging elements of this ever-changing field. We the operational problems of the British and U. s. military also wanted to establish the close associations that OR/MS efforts in World War II.

Handbook on Modelling for Discrete Optimization - Gautam M. Appa 2006-08-18

This book aims to demonstrate and detail the pervasive nature of Discrete Optimization. The handbook couples the difficult, critical-thinking aspects of mathematical modeling with the hot area of discrete optimization. It is done with an academic treatment outlining the state-of-the-art for researchers across the domains of the Computer Science, Math Programming, Applied Mathematics, Engineering, and Operations Research. The book utilizes the tools of mathematical modeling, optimization, and integer programming to solve a broad range of modern problems.

Operations Research: Introduction to Models and Methods - Richard Johannes Boucherie 2021-10-26

"All essential topics and even more are covered while keeping the size of the book down (competitive textbooks are lengthy at thousand pages, which is overwhelming for beginning students). LP-sensitivity and post-optimality analysis are presented in an easily understandable manner. Much attention is focused on heuristic solution methods and dynamic optimization. Coverage of more advanced operations research topics, such as Markovian control, inventory and queueing approximations, and networks of queues. A carefully designed collection of motivational examples and problems"--

Julia Programming for Operations Research - Changhyun Kwon 2019-03-03

Last Updated: December 2020 Based on Julia v1.3+ and JuMP v0.21+ The main motivation of writing this book was to help the author himself. He is a professor in the field of operations research, and his daily activities involve building models of mathematical optimization, developing algorithms for solving the problems, implementing those algorithms using computer programming languages, experimenting with data, etc. Three languages are involved: human language, mathematical language, and computer language. His team of students need to go over three different languages, which requires "translation" among the three languages. As this book was written to teach his research group how to translate, this book will also be useful for anyone who needs to learn how to translate in a similar situation. The Julia Language is as fast as C, as convenient as MATLAB, and as general as Python with a flexible algebraic modeling language for mathematical optimization problems. With the great support from Julia developers, especially the developers of the JuMP—Julia for Mathematical Programming—package, Julia makes a perfect tool for students and professionals in operations research and related areas such as industrial engineering, management science, transportation engineering, economics, and regional science. For more information, visit: <http://www.chkwon.net/julia>

Interactive Operations Research with Maple - Mahmut Parlar 2012-12-06 Interactive Operations Research with Maple: Methods and Models has two objectives: to provide an accelerated introduction to the computer algebra system Maple and, more importantly, to demonstrate Maple's usefulness in modeling and solving a wide range of operations research (OR) problems. This book is written in a format that makes it suitable for a one-semester course in operations research, management science, or quantitative methods. A number of students in the departments of operations research, management science, operations management, industrial and systems engineering, applied mathematics and advanced MBA students who are specializing in quantitative methods or operations management will find this text useful. Experienced researchers and practitioners of operations research who wish to acquire a quick overview of how Maple can be useful in solving OR problems will find this an excellent reference. Maple's mathematical knowledge base now

includes calculus, linear algebra, ordinary and partial differential equations, number theory, logic, graph theory, combinatorics, statistics and transform methods. Although Maple's main strength lies in its ability to perform symbolic manipulations, it also has a substantial knowledge of a large number of numerical methods and can plot many different types of attractive-looking two-dimensional and three-dimensional graphs. After almost two decades of continuous improvement of its mathematical capabilities, Maple can now boast a user base of more than 300,000 academics, researchers and students in different areas of mathematics, science and engineering.

Deterministic Operations Research - David J. Rader 2013-06-07

Uniquely blends mathematical theory and algorithm design for understanding and modeling real-world problems Optimization modeling and algorithms are key components to problem-solving across various fields of research, from operations research and mathematics to computer science and engineering. Addressing the importance of the algorithm design process. Deterministic Operations Research focuses on the design of solution methods for both continuous and discrete linear optimization problems. The result is a clear-cut resource for understanding three cornerstones of deterministic operations research: modeling real-world problems as linear optimization problem; designing the necessary algorithms to solve these problems; and using mathematical theory to justify algorithmic development. Treating real-world examples as mathematical problems, the author begins with an introduction to operations research and optimization modeling that includes applications from sports scheduling in the airline industry. Subsequent chapters discuss algorithm design for continuous linear optimization problems, covering topics such as convexity, Farkas' Lemma, and the study of polyhedral before culminating in a discussion of the Simplex Method. The book also addresses linear programming duality theory and its use in algorithm design as well as the Dual Simplex Method, Dantzig-Wolfe decomposition, and a primal-dual interior point algorithm. The final chapters present network optimization and integer programming problems, highlighting various specialized topics including label-correcting algorithms for the shortest path problem, preprocessing and probing in integer programming, lifting of valid inequalities, and branch and cut algorithms. Concepts and approaches are introduced by outlining examples that demonstrate and motivate theoretical concepts. The accessible presentation of advanced ideas makes core aspects easy to understand and encourages readers to understand how to think about the problem, not just what to think. Relevant historical summaries can be found throughout the book, and each chapter is designed as the continuation of the "story" of how to both model and solve optimization problems by using the specific problems—linear and integer programs—as guides. The book's various examples are accompanied by the appropriate models and calculations, and a related Web site features these models along with Maple™ and MATLAB® content for the discussed calculations. Thoroughly class-tested to ensure a straightforward, hands-on approach, *Deterministic Operations Research* is an excellent book for operations research of linear optimization courses at the upper-undergraduate and graduate levels. It also serves as an insightful reference for individuals working in the fields of mathematics, engineering, computer science, and operations research who use and design algorithms to solve problem in their everyday work.

Optimization for Decision Making - Katta G. Murty 2010-03-14

Linear programming (LP), modeling, and optimization are very much the fundamentals of OR, and no academic program is complete without them. No matter how highly developed one's LP skills are, however, if a fine appreciation for modeling isn't developed to make the best use of those skills, then the truly 'best solutions' are often not realized, and efforts go wasted. Katta Murty studied LP with George Dantzig, the father of linear programming, and has written the graduate-level solution to that problem. While maintaining the rigorous LP instruction required, Murty's new book is unique in his focus on developing modeling skills to support valid decision making for complex real world problems. He describes the approach as 'intelligent modeling and decision making' to emphasize the importance of employing the best expression of actual problems and then applying the most computationally effective and efficient solution technique for that model.

Analyzing Risk through Probabilistic Modeling in Operations Research - Jakóbczak, Dariusz Jacek 2015-11-03

Probabilistic modeling represents a subject spanning many branches of mathematics, economics, and computer science to connect pure

mathematics with applied sciences. Operational research also relies on this connection to enable the improvement of business functions and decision making. Analyzing Risk through Probabilistic Modeling in Operations Research is an authoritative reference publication discussing the various challenges in management and decision science. Featuring exhaustive coverage on a range of topics within operational research including, but not limited to, decision analysis, data mining, process modeling, probabilistic interpolation and extrapolation, and optimization methods, this book is an essential reference source for decision makers, academicians, researchers, advanced-level students, technology developers, and government officials interested in the implementation of probabilistic modeling in various business applications.

OPERATIONS RESEARCH - K. RAJAGOPAL 2012-07-07

This comprehensive book provides the students with the basic knowledge of the processes involved in operations research and discusses the techniques of solutions to problems and their applications in daily life. Beginning with an overview of the operations research models and decision-making, the book describes in detail the various optimization techniques such as linear and non-linear programming, integer linear programming, dynamic programming, genetic programming, and network techniques such as PERT (program evaluation review technique) and CPM (critical path method). It also explains the transportation and assignment problems, queuing theory, games theory, sequencing, replacement and capital investment decisions and inventory. Besides, the book discusses the Monte Carlo simulation techniques for solving queuing, demand forecasting, inventory and scheduling problems and elaborates on genetic algorithms. Each mathematical technique is dealt with in two parts. The first part explains the theory underlying the methodology of solution to problems. The second part illustrates how the theory is applied to solve different kinds of problems. This book is designed as a textbook for the undergraduate students of mechanical engineering, electrical engineering, production and industrial engineering, computer science and engineering and information technology. Besides, the book will also be useful to the postgraduate students of production and industrial engineering, computer applications, business administration, commerce, mathematics and statistics. **KEY FEATURES :** Includes a large number of solved problems to help students comprehend the concepts with ease. Gives step-by-step explanation of algorithms by taking problems. Provides chapter-end exercises to drill the students in self-study.

Operations Research and Simulation in Healthcare - Malek Masmoudi 2021-02-13

This book presents work on healthcare management and engineering using optimization and simulation methods and techniques. Specific topics covered in the contributed chapters include discrete-event simulation, patient admission scheduling, simulation-based emergency department control systems, patient transportation, cost function networks, hospital bed management, and operating theater scheduling. The content will be valuable for researchers and postgraduate students in computer science, information technology, industrial engineering, and applied mathematics.

Operations Research Models and Methods - Paul A. Jensen 2002-10-08

In a rapidly developing field like Operations Research, it's easy to get overwhelmed by the variety of topics and analytic techniques. Paul Jensen and Jonathan Bard help you master the expensive field by focusing on the fundamental models and methodologies underlying the practice of Operations Research. Bridging the gap between theory and practice, the author presents the quantitative tools and models most important to understanding modern operations research. You'll come to appreciate the power of OR techniques in solving real-world problems and applications in your own field. You'll learn how to translate complex situations into mathematical models, solve models and turn models into solutions. This text is designed to bridge the gap between theory and practice by presenting the quantitative tools and models most suited for modern operations research. The principal goal is to give analysts, engineers, and decision makers a larger appreciation of their roles by defining a common terminology and by explaining the interfaces between the underlying methodologies. Features Divides each subject into methods and models, giving you greater flexibility in how you approach the material. Concise and focused presentation highlights central ideas. Many examples throughout the text will help you better understand mathematical material.

Operations Research - Michael Carter 2018-08-06

Operations Research: A Practical Introduction is just that: a hands-on

approach to the field of operations research (OR) and a useful guide for using OR techniques in scientific decision making, design, analysis and management. The text accomplishes two goals. First, it provides readers with an introduction to standard mathematical models and algorithms. Second, it is a thorough examination of practical issues relevant to the development and use of computational methods for problem solving. **Highlights:** All chapters contain up-to-date topics and summaries A succinct presentation to fit a one-term course Each chapter has references, readings, and list of key terms Includes illustrative and current applications New exercises are added throughout the text Software tools have been updated with the newest and most popular software Many students of various disciplines such as mathematics, economics, industrial engineering and computer science often take one course in operations research. This book is written to provide a succinct and efficient introduction to the subject for these students, while offering a sound and fundamental preparation for more advanced courses in linear and nonlinear optimization, and many stochastic models and analyses. It provides relevant analytical tools for this varied audience and will also serve professionals, corporate managers, and technical consultants.

[A Long View of Research and Practice in Operations Research and Management Science](#) - ManMohan S. Sodhi 2010-09-09

From the Foreword by Marshall Fisher, The Wharton School, University of Pennsylvania: As generation of academics and practitioners follows generation, it is worthwhile to compile long views of the research and practice in the past to shed light on research and practice going forward. This collection of peer-reviewed articles is intended to provide such a long view. This book contains a collection of chapters written by leading scholars/practitioners who have continued their efforts in developing and/or implementing innovative OR/MS tools for solving real world problems. In this book, the contributors share their perspectives about the past, present and future of OR/MS theoretical development, solution tools, modeling approaches, and applications. Specifically, this book collects chapters that offer insights about the following topics: • Survey articles taking a long view over the past two or more decades to arrive at the present state of the art while outlining ideas for future research. Surveys focus on use of a particular OR/MS approach, e.g., mathematical programming (LP, MILP, etc.) and solution methods for particular family of application, e.g., distribution system design, distribution planning system, health care. • Autobiographical or biographical accounts of how particular inventions (e.g., Structured Modeling) were made. These could include personal experiences in early development of OR/MS and an overview of what has happened since. • Development of OR/MS mathematical tools (e.g., stochastic programming, optimization theory). • Development of OR/MS in a particular industry sector such as global supply chain management. • Modeling systems for OR/MS and their development over time as well as speculation on future development (e.g., LINDO, LINGO, and What'sBest!) • New applications of OR/MS models (e.g., happiness) The target audience of this book is young researchers, graduate/advanced undergraduate students from OR/MS and related fields like computer science, engineering, and management as well as practitioners who want to understand how OR/MS modeling came about over the past few decades and what research topics or modeling approaches they could pursue in research or application.

[Stochastic Processes and Models in Operations Research](#) - Anbazhagan, Neelamegam 2016-03-24

Decision-making is an important task no matter the industry. Operations research, as a discipline, helps alleviate decision-making problems through the extraction of reliable information related to the task at hand in order to come to a viable solution. Integrating stochastic processes into operations research and management can further aid in the decision-making process for industrial and management problems. Stochastic Processes and Models in Operations Research emphasizes mathematical tools and equations relevant for solving complex problems within business and industrial settings. This research-based publication aims to assist scholars, researchers, operations managers, and graduate-level students by providing comprehensive exposure to the concepts, trends, and technologies relevant to stochastic process modeling to solve operations research problems.

[Studyguide for Deterministic Operations Research](#) - Cram101 Textbook Reviews 2010-12

Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online

comprehensive practice tests. Only Cram101 is Textbook Specific.
Accompanys: 9780470484517 .

Operations Research, 2/e - A. M. Natarajan 2014

Operations research, 2e is the study of optimization techniques.

Designed to cater to the syllabi requirements of Indian universities, this book on operations research reinforces the concepts discussed in each chapter with solved problems. A unique feature of this book is that with its focus on coherence and clarity, it hand-holds students through the solutions, each step of the way.

The Traffic Assignment Problem - Michael Patriksson 2015-01-19

This monograph provides both a unified account of the development of models and methods for the problem of estimating equilibrium traffic flows in urban areas and a survey of the scope and limitations of present traffic models. The development is described and analyzed by the use of the powerful instruments of nonlinear optimization and mathematical programming within the field of operations research. The first part is devoted to mathematical models for the analysis of transportation network equilibria; the second deals with methods for traffic equilibrium problems. This title will interest readers wishing to extend their knowledge of equilibrium modeling and analysis and of the foundations of efficient optimization methods adapted for the solution of large-scale models. In addition to its value to researchers, the treatment is suitable for advanced graduate courses in transportation, operations research, and quantitative economics.

Data Envelopment Analysis - Joe Zhu 2015-03-18

This handbook represents a milestone in the progression of Data Envelopment Analysis (DEA). Written by experts who are often major contributors to DEA theory, it includes a collection of chapters that represent the current state-of-the-art in DEA research. Topics include distance functions and their value duals, cross-efficiency measures in DEA, integer DEA, weight restrictions and production trade-offs, facet analysis in DEA, scale elasticity, benchmarking and context-dependent DEA, fuzzy DEA, non-homogenous units, partial input-output relations, super efficiency, treatment of undesirable measures, translation invariance, stochastic nonparametric envelopment of data, and global frontier index. Focusing only on new models/approaches of DEA, the book includes contributions from Juan Aparicio, Mette Asmild, Yao Chen, Wade D. Cook, Juan Du, Rolf Färe, Julie Harrison, Raha Imanirad, Andrew Johnson, Chiang Kao, Abolfazl Keshvari, Timo Kuosmanen, Sungmook Lim, Wenbin Liu, Dimitri Margaritis, Reza Kazemi Matin, Ole B. Olesen, Jesus T. Pastor, Niels Chr. Petersen, Victor V. Podinovski, Paul Rouse, Antti Saastamoinen, Biresh K. Sahoo, Kaoru Tone, and Zhongbao Zhou.

Computer Methods in Operations Research - Arne Thesen
2014-05-10

Computer Methods in Operations Research focuses on the computational methods used in operations research. Topics covered range from list processing to sorting and searching, networks, and critical path methods. Resource-constrained scheduling methods and linear programming methods are also discussed, along with the branch and bound concept. Comprised of 11 chapters, this book begins with a review of some of the basic principles that make a software development effort successful, emphasizing the need to keep things simple and understandable. The reader is then introduced to the basic principles of list processing, searching, and sorting; the concept of networks and several matrix- and list-oriented methods for representing networks in the computer; and the critical path method. Subsequent chapters deal with more complex programs and algorithms to handle scheduling of activities under precedence and resource restrictions; the resource-constrained scheduling problem, formulated both in an exact (using integer programming) and in a heuristic manner; the design of algorithms for the solution of large linear programming problems; and the application of list processing concepts to the development of branch and bound algorithms for solution of combinatorial optimization problems. The book also considers the design of random number generators and discrete event simulation programming before concluding with a description of two programming languages, GPSS and WIDES, for use in simulation modeling. This monograph will be of value to students and practitioners of operations research and industrial engineering.

Markov Chains: Models, Algorithms and Applications - Wai-Ki Ching
2006-06-05

Markov chains are a particularly powerful and widely used tool for analyzing a variety of stochastic (probabilistic) systems over time. This monograph will present a series of Markov models, starting from the basic models and then building up to higher-order models. Included in the higher-order discussions are multivariate models, higher-order multivariate models, and higher-order hidden models. In each case, the focus is on the important kinds of applications that can be made with the class of models being considered in the current chapter. Special attention is given to numerical algorithms that can efficiently solve the models. Therefore, *Markov Chains: Models, Algorithms and Applications* outlines recent developments of Markov chain models for modeling queueing sequences, Internet, re-manufacturing systems, reverse logistics, inventory systems, bio-informatics, DNA sequences, genetic networks, data mining, and many other practical systems.