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## Methods and Models

## A Guide to the Empirical Analysis of Formal Models in Political Science

**Cambridge University Press** At present much of political science consists of a large body of formal mathematical work that remains largely unexplored empirically and an expanding use of sophisticated statistical techniques. While there are examples of noteworthy efforts to bridge the gap between these, there is still a need for much more cooperative work between formal theorists and empirical researchers in the discipline. This book explores how empirical analysis has, can, and should be used to evaluate formal models in political science. The book is intended to be a guide for active and future political scientists who are confronting the issues of empirical analysis with formal models in their work and as a basis for a needed dialogue between empirical and formal theoretical researchers in political science. These developments, if combined, are potentially a basis for a new revolution in political science.

## The Traffic Assignment Problem

## Models and Methods

**Courier Dover Publications** 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.

## Social Dynamics Models and Methods

**Elsevier** Social Dynamics: Models and Methods focuses on sociological methodology and on the practice of sociological research. This book is organized into three parts encompassing 16 chapters that deal with the basic principles of social dynamics. The first part of this book considers the development of models and methods for causal analysis of the actual time paths of change in attributes of individual and social systems. This part also discusses the applications in which the use of dynamic models and methods seems to have enhanced the capacity to formulate and test sociological arguments. These models and methods are useful for answering questions about the detailed structure of social change processes. The second part explores the formulation of the continuous-time models of change in both quantitative and qualitative outcomes and the development of suitable methods for estimating these models from the kinds of data commonly available to sociologists. The third part describes a stochastic framework for analyzing both qualitative and quantitative outcome of social changes. This part also discusses the sociologists' perspective on the empirical study of social change processes. This text will be of great value to sociologists and sociological researchers.

## Variational Models and Methods in Solid and Fluid Mechanics

**Springer Science & Business Media** F. dell'Isola, L. Placidi: Variational principles are a powerful tool also for formulating field theories. - F. dell'Isola, P. Seppecher, A. Madeo: Beyond Euler-Cauchy Continua. The structure of contact actions in N-th gradient generalized continua: a generalization of the Cauchy tetrahedron argument. - B. Bourdin, G.A. Francfort: Fracture. - S. Gavrilyuk: Multiphase flow modeling via Hamilton's principle. - V. L. Berdichevsky: Introduction to stochastic variational problems. - A. Carcaterra: New concepts in damping generation and control: theoretical formulation and industrial applications. - F. dell'Isola, P. Seppecher, A. Madeo: Fluid shock wave generation at solid-material discontinuity surfaces in porous media. Variational methods give an efficient and elegant way to formulate and solve mathematical problems that are of interest to scientists and engineers. In this book three fundamental aspects of the variational formulation of mechanics will be presented: physical, mathematical and applicative ones. The first aspect concerns the investigation of the nature of real physical problems with the aim of finding the best variational formulation suitable to those problems. The second aspect is the study of the well-posedeness of those mathematical problems which need to be solved in order to draw previsions from the formulated models. And the third aspect is related to the direct application of variational analysis to solve real engineering problems.

## Methods and Models in Mathematical Programming

**Springer Nature** This book focuses on mathematical modeling, describes the process of constructing and evaluating models, discusses the challenges and delicacies of the modeling process, and explicitly outlines the required rules and regulations so that the reader will be able to generalize and reuse concepts in other problems by relying on mathematical logic.Undergraduate and postgraduate students of different academic disciplines would find this book a suitable option preparing them for jobs and research fields requiring modeling techniques. Furthermore, this book can be used as a reference book for experts and practitioners requiring advanced skills of model building in their jobs.

## Mathematics in Economics

## Models and Methods

**Wiley-Blackwell** A valuable guide to the mathematical apparatus that underlies so much of modern economics. The approach to mathematics is rigorous and the mathematical techniques are always presented in the context of the economics problem they are used to solve. Students can gain insight into, and familiarity with, the mathematical models and methods involved in the transition from 'phenomenon' to quantitative statement.

## Systems Engineering Models

## Theory, Methods, and Applications

**CRC Press** This book presents a comprehensive compilation of practical systems engineering models. The application and recognition of systems engineering is spreading rapidly, however there is no book that addresses the availability and usability of systems engineering models. Notable among the models to be included are the V-Model, DEJI Model, and Waterfall Model. There are other models developed for specific organizational needs, which will be identified and presented in a practical template so that other organizations can learn and use them. A better understanding of the models, through a comprehensive book, will make these models more visible, embraced, and applied across the spectrum. Visit www.DEJImodel.com for model details. Features Covers applications to both small and large problems Displays decomposition of complex problems into smaller manageable chunks Discusses direct considerations of the pertinent constraints that exist in the problem domain Presents systematic linking of inputs to goals and outputs

## Discrete Probability Models and Methods

## Probability on Graphs and Trees, Markov Chains and Random Fields, Entropy and Coding

**Springer** The emphasis in this book is placed on general models (Markov chains, random fields, random graphs), universal methods (the probabilistic method, the coupling method, the Stein-Chen method, martingale methods, the method of types) and versatile tools (Chernoff's bound, Hoeffding's inequality, Holley's inequality) whose domain of application extends far beyond the present text. Although the examples treated in the book relate to the possible applications, in the communication and computing sciences, in operations research and in physics, this book is in the first instance concerned with theory. The level of the book is that of a beginning graduate course. It is self-contained, the prerequisites consisting merely of basic calculus (series) and basic linear algebra (matrices). The reader is not assumed to be trained in probability since the first chapters give in considerable detail the background necessary to understand the rest of the book.

# Data Mining Methods and Models

**John Wiley & Sons** Apply powerful Data Mining Methods and Models to Leverage your Data for Actionable Results Data Mining Methods and Models provides: * The latest techniques for uncovering hidden nuggets of information * The insight into how the data mining algorithms actually work * The hands-on experience of performing data mining on large data sets Data Mining Methods and Models: * Applies a "white box" methodology, emphasizing an understanding of the model structures underlying the softwareWalks the reader through the various algorithms and provides examples of the operation of the algorithms on actual large data sets, including a detailed case study, "Modeling Response to Direct-Mail Marketing" * Tests the reader's level of understanding of the concepts and methodologies, with over 110 chapter exercises * Demonstrates the Clementine data mining software suite, WEKA open source data mining software, SPSS statistical software, and Minitab statistical software * Includes a companion Web site, www.dataminingconsultant.com, where the data sets used in the book may be downloaded, along with a comprehensive set of data mining resources. Faculty adopters of the book have access to an array of helpful resources, including solutions to all exercises, a PowerPoint(r) presentation of each chapter, sample data mining course projects and accompanying data sets, and multiple-choice chapter quizzes. With its emphasis on learning by doing, this is an excellent textbook for students in business, computer science, and statistics, as well as a problem-solving reference for data analysts and professionals in the field. An Instructor's Manual presenting detailed solutions to all the problems in the book is available onlne.

# Models & Methods for Project Selection

## Concepts from Management Science, Finance and Information Technology

**Springer Science & Business Media** 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.

# Mathematical Methods and Models for Economists

**Cambridge University Press** A textbook for a first-year PhD course in mathematics for economists and a reference for graduate students in economics.

# Methods and Models in Demography

**Guilford Press** This volume clearly outlines the methods used to study population structure and change by presenting the major descriptive and analytical models developed by demographers to investigate the interrelationships between fertility, age, structure, and mortality. With illustrations, tables, and data drawn from a wide range of countries in both the developed and developing world, Methods and Models in Demography explicates the potential uses and limitations of the current models for population analysis, estimation, and forecasting. Its broad yet in-depth approach to this field of wide-spread concern makes Methods and Models in Demography an invaluable resource for researchers and social planners. The book's clear writing, step-by-step format, numerous case examples, and exercises (complete with answers), make it an exemplary classroom text for any population-related course.

# Models and Methods in Social Network Analysis

Models and Methods in Social Network Analysis presents the most important developments in quantitative models and methods for analyzing social network data that have appeared during the 1990s. Intended as a complement to Wasserman and Faust's Social Network Analysis: Methods and Applications, it is a collection of articles by leading methodologists reviewing advances in their particular areas of network methods. Reviewed are advances in network measurement, network sampling, the analysis of centrality, positional analysis or blockmodelling, the analysis of diffusion through networks, the analysis of affiliation or 'two-mode' networks, the theory of random graphs, dependence graphs, exponential families of random graphs, the analysis of longitudinal network data, graphical techniques for exploring network data, and software for the analysis of social networks.

# Student's Guide to Operations Research

# Economic Models

## Methods, Theory and Applications

**World Scientific** Model Building is the most fruitful area of economics, designed to solve real-world problems using all available methods such as mathematical, computational and analytical, without distinction. Wherever necessary, we should not be reluctant to develop new techniques, whether mathematical or computational. That is the philosophy of this volume. The volume is divided into three distinct parts: Methods, Theory and Applications. The Methods section is in turn subdivided into Mathematical Programming and Econometrics and Adaptive Control System, which are widely used in econometric analysis. The impacts of fiscal policy in a regime with independent monetary authority and dynamic models of environmental taxation are considered. In the section on "Modelling Business Organization," a model of a Japanese organization is presented. Furthermore, a model suitable for an efficient budget management of a health service unit by applying goal programming method is analyzed, taking into account various socio-economic factors. This is followed by a section on "Modelling National Economies," in which macroeconometric models for the EU member countries are analyzed, to find instruments that stabilize inflation with coordinated action.

# Models and Methods of Magnetotellurics

**Springer Science & Business Media** Magnetotellurics is finding increasing applications for imaging electrically conductive structures below the Earth`s surface - in both industrial and academic research projects. In this book the authors provide a systematic approach to understanding the modern theory of ill-posed problems which is essential to making confident meaningful interpretations of magnetotelluric and magnetovariational soundings. The interpretation is conducted in an interactive way.

# Business Analytics with Management Science Models and Methods

This book is about prescriptive analytics. It provides business practitioners and students with a selected set of management science and optimization techniques and discusses the fundamental concepts, methods, and models needed to understand and implement these techniques in the era of Big Data. A large number of management science models exist in the body of literature today. These models include optimization techniques or heuristics, static or dynamic programming, and deterministic or stochastic modeling. The topics selected in this book, mathematical programming and simulation modeling, are believed to be among the most popular management science tools, as they can be used to solve a majority of business optimization problems. Over the years, these techniques have become the weapon of choice for decision makers and practitioners when dealing with complex business systems.

# Concise Guide to Optimization Models and Methods

## A Problem-Based Test Prep for Students

**Springer Nature** This concise text contains the most commonly-encountered examination problems in the topic of Optimization Models and Methods, an important module in engineering and other disciplines where there exists an increasing need to operate optimally and sustainably under constraints, such as tighter resource availability, environmental consideration, and cost pressures. This book is comprehensive in coverage as it includes a diverse spectrum of problems from numerical open-ended questions that probe creative thinking to the relation of concepts to realistic settings. The book adopts many examples of design scenarios as context for curating sample problems. This will help students relate desktop problem-solving to tackling real-world problems. Succinct yet rigorous, with over a 100 pages of problems and corresponding worked solutions presented in detail, the book is ideal for students of engineering, applied science, and market analysis.

# Mathematical Models and Methods for Ab Initio Quantum Chemistry

**Springer Science & Business Media** On the occasion of the fourth International Conference on Industrial and Applied Mathematics!, we decided to organize a sequence of 4 minisymposia devoted to the mathematical aspects and the numerical aspects of Quantum Chemistry. Our goal was to bring together scientists from different communities, namely mathematicians, experts at numerical analysis and computer science, chemists, just to see whether this heterogeneous set of lecturers can produce a rather homogeneous presentation of the domain to an uninitiated audience. To the best of our knowledgde, nothing of this kind had never been tempted so far. It seemed to us that it was the good time for doing it, both . because the interest of applied mathematicians into the world of computational chemistry has exponentially increased in the past few years, and because the community of chemists feels more and more concerned with the numerical issues. Indeed, in the early years of Quantum Chemistry, the pioneers (Coulson, Mac Weeny, just to quote two of them) used to solve fundamental equations modelling toy systems which could be simply numerically handled in view of their very limited size. The true difficulty arose with the need to model larger systems while possibly taking into account their interaction with their environment. Hand calculations were no longer possible, and

computing science came into the picture.

# Empirical Asset Pricing

# Models and Methods

**MIT Press** An introduction to the theory and methods of empirical asset pricing, integrating classical foundations with recent developments. This book offers a comprehensive advanced introduction to asset pricing, the study of models for the prices and returns of various securities. The focus is empirical, emphasizing how the models relate to the data. The book offers a uniquely integrated treatment, combining classical foundations with more recent developments in the literature and relating some of the material to applications in investment management. It covers the theory of empirical asset pricing, the main empirical methods, and a range of applied topics. The book introduces the theory of empirical asset pricing through three main paradigms: mean variance analysis, stochastic discount factors, and beta pricing models. It describes empirical methods, beginning with the generalized method of moments (GMM) and viewing other methods as special cases of GMM; offers a comprehensive review of fund performance evaluation; and presents selected applied topics, including a substantial chapter on predictability in asset markets that covers predicting the level of returns, volatility and higher moments, and predicting cross-sectional differences in returns. Other chapters cover production-based asset pricing, long-run risk models, the Campbell-Shiller approximation, the debate on covariance versus characteristics, and the relation of volatility to the cross-section of stock returns. An extensive reference section captures the current state of the field. The book is intended for use by graduate students in finance and economics; it can also serve as a reference for professionals.

# Grade Models and Methods for Data Analysis

# With Applications for the Analysis of Data Populations

**Springer Science & Business Media** This book provides a new grade methodology for intelligent data analysis. It introduces a specific infrastructure of concepts needed to describe data analysis models and methods. This monograph is the only book presently available covering both the theory and application of grade data analysis and therefore aiming both at researchers, students, as well as applied practitioners. The text is richly illustrated through examples and case studies and includes a short introduction to software implementing grade methods, which can be downloaded from the editors.

# Boolean Models and Methods in Mathematics, Computer Science, and Engineering

**Cambridge University Press** A collection of papers written by prominent experts that examine a variety of advanced topics related to Boolean functions and expressions.

# Models, Methods, Concepts & Applications of the Analytic Hierarchy Process

**Springer Science & Business Media** 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.

# Modeling Methods for Marine Science

**Cambridge University Press** This advanced textbook on modeling, data analysis and numerical techniques for marine science has been developed from a course taught by the authors for many years at the Woods Hole Oceanographic Institute. The first part covers statistics: singular value decomposition, error propagation, least squares regression, principal component analysis, time series analysis and objective interpolation. The second part deals with modeling techniques: finite differences, stability analysis and optimization. The third part describes case studies of actual ocean models of ever increasing dimensionality and complexity, starting with zero-dimensional models and finishing with three-dimensional general circulation models. Throughout the book hands-on computational examples are introduced using the MATLAB programming language and the principles of scientific visualization are emphasised. Ideal as a textbook for advanced students of oceanography on courses in data analysis and numerical modeling, the book is also an invaluable resource for a broad range of scientists undertaking modeling in chemical, biological, geological and physical oceanography.

# Cure Models

# Methods, Applications, and Implementation

**CRC Press** The first book in the last 25 years that provides a comprehensive and systematic introduction to the basics of modern cure models, including estimation, inference, software. Statistical researchers, graduate students, and practitioners in other disciplines will have a thorough review of modern cure model methodology.

# Operations Research

# Models and Methods

**John Wiley & Sons** In a rapidly developing field like Operations Research, its 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.

# Business Analytics with Management Science Models and Methods

**Pearson Education** This book is about prescriptive analytics. It provides business practitioners and students with a selected set of management science and optimization techniques and discusses the fundamental concepts, methods, and models needed to understand and implement these techniques in the era of Big Data. A large number of management science models exist in the body of literature today. These models include optimization techniques or heuristics, static or dynamic programming, and deterministic or stochastic modeling. The topics selected in this book, mathematical programming and simulation modeling, are believed to be among the most popular management science tools, as they can be used to solve a majority of business optimization problems. Over the years, these techniques have become the weapon of choice for decision makers and practitioners when dealing with complex business systems.

# Models and Methods in Multiple Criteria Decision Making

**Elsevier** This volume is devoted to models and methods in multiple objectives decision making. The importance of the multiple dimensions of decision making was first recognised during the 1960s and since then progress has been made in that theoretical or application oriented contributions may now be categorized under two main headings:- Multiattribute Decision Making (MADM) which concerns the sorting, the ranking or the evaluation of objects of choice according to several criteria and Multiobjective Decision Making (MODM) which deals with the vector optimization in mathematical programming. The above are also presented in the context of various applications, namely banking, environment, health, manpower, media, portfolio and traffic control, resulting in a book for a wide variety of readers.

# Methods and Models in Mathematical Biology

# Deterministic and Stochastic Approaches

**Springer** This book developed from classes in mathematical biology taught by the authors over several years at the Technische Universität München. The main themes are modeling principles, mathematical principles for the analysis of these models and model-based analysis of data. The key topics of modern biomathematics are covered: ecology, epidemiology, biochemistry, regulatory networks, neuronal networks and population genetics. A variety of mathematical methods are introduced, ranging from ordinary and partial differential equations to stochastic graph theory and branching processes. A special emphasis is placed on the interplay between stochastic and deterministic models.

# Mechanics, Models and Methods in Civil Engineering

**Springer Science & Business Media** „Mechanics, Models and Methods in Civil Engineering" collects leading papers dealing with actual Civil Engineering problems. The approach is in the line of the Italian-French school and therefore deeply couples mechanics and mathematics creating new predictive theories, enhancing clarity in understanding, and improving effectiveness in applications. The authors of the contributions collected here belong to the Lagrange Laboratory, an European Research Network active since many years. This book will be of a major interest for the reader aware of modern Civil Engineering.

# Advances in Enterprise Engineering III

# 5th International Workshop, CIAO! 2009, and 5th International Workshop, EOMAS 2009, held at CAiSE 2009, Amsterdam, The Netherlands, June 8-9, 2009, Proceedings

**Springer** In the era of continuous changes in internal organizationalsettings and external business environments – such as new regulations and business opportunities – modern enterprises are subject to extensive research and study. For the understanding, design, and engineering of modern enterprises and theircomplexbusiness processes,thedisciplineofenterpriseengineeringrequires sound engineering principles and systematic approaches based on rigorous th- ries. Along with that, a paradigm shift seems to be needed for addressing these issues adequately. The main paradigm shift is the consideration of an enterprise and its business processes as a social system. In its social setting, an enterprise and its business processes represent actors with certain authorities and assigned roles, who assume certain responsibilities in order to provide a service to its environment. Second to that, a paradigm shift is to look at an enterprise as an artifact purposefully designed for a certain mission and goal. The need for this paradigm shift, along with the complexity and agility of modern enterprises, gives inspiration for the emerging discipline of enterprise engineering that requires development of new theories and methodologies. To this end, the prominent methods and tools of modeling and simulation play a signi?cant role. Both (conceptual) modeling and simulation are widely used for understanding, analyzing, and engineering an enterprise (its organization and business processes).

# Mobile Robotics

# Mathematics, Models, and Methods

**Cambridge University Press** Introduction -- Math fundamentals -- Numerical methods -- Dynamics -- Optimal estimation -- State estimation -- Control -- Perception -- Localization and mapping -- Motion planning

# Age-Period-Cohort Analysis

# New Models, Methods, and Empirical Applications

**CRC Press** This book explores the ways in which statistical models, methods, and research designs can be used to open new possibilities for APC analysis. Within a single, consistent HAPC-GLMM statistical modeling framework, the authors synthesize APC models and methods for three research designs: age-by-time period tables of population rates or proportions, repeated cross-section sample surveys, and accelerated longitudinal panel studies. They show how the empirical application of the models to various problems leads to many fascinating findings on how outcome variables develop along the age, period, and cohort dimensions.

# Bayesian Statistics from Methods to Models and Applications

# Research from BAYSM 2014

**Springer** The Second Bayesian Young Statisticians Meeting (BAYSM 2014) and the research presented here facilitate connections among researchers using Bayesian Statistics by providing a forum for the development and exchange of ideas. WU Vienna University of Business and Economics hosted BAYSM 2014 from September 18th to the 19th. The guidance of renowned plenary lecturers and senior discussants is a critical part of the meeting and this volume, which follows publication of contributions from BAYSM 2013. The meeting's scientific program reflected the variety of fields in which Bayesian methods are currently employed or could be introduced in the future. Three brilliant keynote lectures by Chris Holmes (University of Oxford), Christian Robert (Université Paris-Dauphine), and Mike West (Duke University), were complemented by 24 plenary talks covering the major topics Dynamic Models, Applications, Bayesian Nonparametrics, Biostatistics, Bayesian Methods in Economics, and Models and Methods, as well as a lively poster session with 30 contributions. Selected contributions have been drawn from the conference for this book. All contributions in this volume are peer-reviewed and share original research in Bayesian computation, application, and theory.

# Optimization Models and Methods for Equilibrium Traffic Assignment

**Springer Nature** This book is focused on the discussion of the traffic assignment problem, the mathematical and practical meaning of variables, functions and basic principles. This work gives information about new approaches, methods and algorithms based on original methodological technique, developed by authors in their publications for the past several years, as well as corresponding prospective implementations. The book may be of interest to a wide range of readers, such as civil engineering students, traffic engineers, developers of traffic assignment algorithms etc. The obtained results here are to be used in both practice and theory. This book is devoted to the traffic assignment problem, formulated in a form of nonlinear optimization program. The most efficient solution algorithms related to the problem are based on its structural features and practical meaning rather than on standard nonlinear optimization techniques or approaches. The authors have carefully considered the meaning of the traffic assignment problem for efficient algorithms development.

# Mathematical Models and Methods

# Handbook

# Mathematical and Statistical Models and Methods in Reliability

# Applications to Medicine, Finance, and Quality Control

**Springer Science & Business Media** The book is a selection of invited chapters, all of which deal with various aspects of mathematical and statistical models and methods in reliability. Written by renowned experts in the field of reliability, the contributions cover a wide range of applications, reflecting recent developments in areas such as survival analysis, aging, lifetime data analysis, artificial intelligence, medicine, carcinogenesis studies, nuclear power, financial modeling, aircraft engineering, quality control, and transportation. Mathematical and Statistical Models and Methods in Reliability is an excellent reference text for researchers and practitioners in applied probability and statistics, industrial statistics, engineering, medicine, finance, transportation, the oil and gas industry, and artificial intelligence.

# High Level Models and Methodologies for Information Systems

**Springer** In this book the authors introduce and explain many methods and models for the development of Information Systems (IS). It was written in large part to aid designers in designing successful devices/systems to match user needs in the field. Chief among these are website development, usability evaluation, quality evaluation and success assessment. The book provides great detail in order to assist readers' comprehension and understanding of both novel and refined methodologies by presenting, describing, explaining and illustrating their basics and working mechanics. Furthermore, this book presents many traditional methods and methodologies in an effort to make up a comprehensive volume on High Level Models and Methodologies for Information Systems. The target audience for this book is anyone interested in conducting research in IS planning and development. The book represents a main source of theory and practice of IS methods and methodologies applied to these realities. The book will appeal to a range of professions that are involved in planning and building the information systems, for example information technologists, information systems developers, as well as Web designers and developers—both researchers and practitioners; as a consequence, this book represents a genuinely multi-disciplinary approach to the field of IS methods and methodologies.

# Mathematical Models and Methods for Real World Systems

**CRC Press** Mathematics does not exist in isolation but is linked inextricably to the physical world. At the 2003 International Congress of Industrial and Applied Mathematics, leading mathematicians from around the globe gathered for a symposium on the "Mathematics of Real World Problems," which focused on furthering the establishment and dissemination of thos

# Linguistic Variation

# Models and Methods