

# The 4th quarter 2013 catalog

**Mathsciences**



## Computer Science

O. Mali, University of Jyväskylä, Jyväskylä, Finland; P. Neittaanmäki, University of Jyväskylä, Jyväskylä, Finland; S. Repin, Russian Academy of Sciences, St. Petersburg, Russian Federation

### Accuracy Verification Methods

#### Theory and Algorithms

The importance of accuracy verification methods was understood at the very beginning of the development of numerical analysis. Recent decades have seen a rapid growth of results related to adaptive numerical methods and a posteriori estimates. However, in this important area there often exists a noticeable gap between mathematicians creating the theory and researchers developing applied algorithms that could be used in engineering and scientific computations for guaranteed and efficient error control. The goals of the book are to (1) give a transparent explanation of the underlying mathematical theory in a style accessible not only to advanced numerical analysts but also to engineers[...]

#### Features

The importance of accuracy verification methods was understood at the very beginning of the development of numerical analysis. Recent decades have seen a rapid growth of results related to adaptive numerical methods and a posteriori estimates. However, in this important area there often exists a noticeable gap between mathematicians creating the theory and researchers developing applied algorithms that [...]

#### Contents

1 Errors Arising In Computer Simulation Methods.- 1.1 General scheme.- 1.2 Errors of mathematical models.- 1.3 Approximation errors.- 1.4 Numerical errors.- 2 Error Indicators.- 2.1 Error indicators and adaptive numerical methods.- 2.1.1 Error indicators for FEM solutions.- 2.1.2 Accuracy of error indicators.- 2.2 Error indicators for the energy norm.- 2.2.1 Error indicators based on interpolation estimates.- 2.2.2 Error indicators based on approximation of the error functional.- 2.2.3 Error indicators of the Runge type.- 2.3 Error indicators for goal-oriented quantities.- 2.3.1 Error[...]

#### Fields of interest

Numeric Computing; Computational Science and Engineering; Numerical Analysis; Numerical and Computational Physics; Computational Intelligence

#### Target groups

Research

#### Type of publication

Monograph

More on [www.springer.com/978-94-007-7580-0](http://www.springer.com/978-94-007-7580-0)

#### Hardcover

2014. XIII, 355 p. 76 illus. (Computational Methods in Applied Sciences, Vol. 32)  
ISBN 978-94-007-7580-0

**Due: October 31, 2013**

G.M. Farinella, Università di Catania, Catania, Italy; S. Battiato, Università di Catania, Catania, Italy; R. Cipolla, University of Cambridge, Cambridge, United Kingdom (Eds.)

### Advanced Topics in Computer Vision

This book presents a broad selection of cutting-edge research, covering both theoretical and practical aspects of reconstruction, registration, and recognition. The text provides an overview of challenging areas and descriptions of novel algorithms. Features: investigates visual features, trajectory features, and stereo matching; reviews the main challenges of semi-supervised object recognition, and a novel method for human action categorization; presents a framework for the visual localization of MAVs, and for the use of moment constraints in convex shape optimization; examines solutions to the co-recognition problem, and distance-based classifiers for large-scale image[...]

#### Features

Computer vision is the science and technology of making machines that see. It is concerned with the theory, design and implementation of algorithms that can automatically process visual data to recognize objects, track and recover their shape and spatial layout. This unique text/reference presents a broad selection of cutting-edge research, covering both theoretical and practical aspects of the three [...]

#### Contents

Visual Features: From Early Concepts to Modern Computer Vision.- Where Next in Object Recognition and How Much Supervision Do We Need?.- Recognizing Human Actions by Using Effective Codebooks and Tracking.- Evaluating and Extending Trajectory Features for Activity Recognition.- Co-Recognition of Images and Videos: Unsupervised Matching of Identical Object Patterns and its Applications.- Stereo Matching: State-of-the-Art and Research Challenges.- Visual Localization for Micro Aerial Vehicles in Urban Outdoor Environments.- Moment Constraints in Convex Optimization for Segmentation and[...]

#### Fields of interest

Computer Imaging, Vision, Pattern Recognition and Graphics

#### Target groups

Research

#### Type of publication

Contributed volume

More on [www.springer.com/978-1-4471-5519-5](http://www.springer.com/978-1-4471-5519-5)

#### Hardcover

2013. XIV, 433 p. 218 illus., 180 illus. in color. (Advances in Computer Vision and Pattern Recognition)  
ISBN 978-1-4471-5519-5

**usually dispatched within 3 to 5 business days  
October 31, 2013**

M.E. Celebi, Louisiana State University Shreveport, Shreveport, USA; B. Smolka (Eds.)

### Advances in Low-Level Color Image Processing

Color perception plays an important role in object recognition and scene understanding both for humans and intelligent vision systems. Recent advances in digital color imaging and computer hardware technology have led to an explosion in the use of color images in a variety of applications including medical imaging, content-based image retrieval, biometrics, watermarking, digital inpainting, remote sensing, visual quality inspection, among many others. As a result, automated processing and analysis of color images has become an active area of research, to which the large number of publications of the past two decades bears witness. The multivariate nature of color image data presents[...]

#### Features

Color perception plays an important role in object recognition and scene understanding both for humans and intelligent vision systems. Recent advances in digital color imaging and computer hardware technology have led to an explosion in the use of color images in a variety of applications including medical imaging, content-based image retrieval, biometrics, watermarking, digital inpainting, remote sensing, [...]

#### Contents

Preface.- 1 Automated Color Misalignment Correction for Close-Range and Long-Range Hyper-Resolution Multi-Line CCD Images, by Zhiyu Chen, Andreas Koschan, Chung-Hao Chen, and Mongi Abidi.- 2 Adaptive Demosaicing Algorithm Using Characteristics of the Color Filter Array Pattern, by Ji Won Lee and Rae-Hong Park.- 3 A Taxonomy of Color Constancy and Invariance Algorithm, by Dohyoung Lee and Konstantinos N. Plataniotis.- 4 On the von Kries Model: Estimate, Dependence on Light and Device, and Applications, by Michela Lecca.- 5 Impulse and mixed multi-channel denoising using statistical[...]

#### Fields of interest

Image Processing and Computer Vision; Signal, Image and Speech Processing; Imaging / Radiology

#### Target groups

Research

#### Type of publication

Monograph

More on [www.springer.com/978-94-007-7583-1](http://www.springer.com/978-94-007-7583-1)

#### Hardcover

2014. XLVI, 470 p. 176 illus., 148 illus. in color. (Lecture Notes in Computational Vision and Biomechanics, Vol. 11)  
ISBN 978-94-007-7583-1

**Due: October 31, 2013**

M. Chen, Zhejiang University, Hangzhou, China (P.R.); R. Hofestädt, Bielefeld University, Bielefeld, Germany (Eds.)

## Approaches in Integrative Bioinformatics

Towards the Virtual Cell

Approaches in Integrative Bioinformatics provides a basic introduction to biological information systems, as well as guidance for the computational analysis of systems biology. This book also covers a range of issues and methods that reveal the multitude of omics data integration types and the relevance that integrative bioinformatics has today. Topics include biological data integration and manipulation, modeling and simulation of metabolic networks, transcriptomics and phenomics, and virtual cell approaches, as well as a number of applications of network biology. It helps to illustrate the value of integrative bioinformatics approaches to the life sciences. This book is intended for[...]

### Features

Approaches in Integrative Bioinformatics provides a basic introduction to biological information systems, as well as guidance for the computational analysis of systems biology. This book also covers a range of issues and methods that reveal the multitude of omics data integration types and the relevance that integrative bioinformatics has today. Topics include biological data integration and [...]

### Contents

Part I: Introduction.- Part II: Information Fusion and Retrieval.- Part III: Network Visualization, Modeling and Analysis.- Part IV: BioData Mapping.- Part V: Biocomputation.

### Fields of interest

Computational Biology / Bioinformatics; Bioinformatics; Biological Networks, Systems Biology; Simulation and Modeling; Data Mining and Knowledge Discovery

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-41280-6](http://www.springer.com/978-3-642-41280-6)

### Hardcover

2013. VIII, 352 p. 103 illus., 78 illus. in color. With online files/update.  
ISBN 978-3-642-41280-6

**Due: December 31, 2013**

E. Al-Shaer, University of North Carolina Charlotte, Charlotte, USA; X. Ou, Kansas State University, Manhattan, USA; G. Xie, Naval Postgraduate School, Monterey, USA (Eds.)

## Automated Security Management

In this contributed volume, leading international researchers explore configuration modeling and checking, vulnerability and risk assessment, configuration analysis, and diagnostics and discovery. The authors equip readers to understand automated security management systems and techniques that increase overall network assurance and usability. These constantly changing networks defend against cyber attacks by integrating hundreds of security devices such as firewalls, IPSec gateways, IDS/IPS, authentication servers, authorization/RBAC servers, and crypto systems. Automated Security Management presents a number of topics in the area of configuration automation. Early in the book, the[...]

### Features

No back cover copy.

### Contents

1: Towards a Unified Modeling and Verification of Network and System Security Configurations.- 2: Modeling and Checking the Security of DIFC System Configurations.- 3: Increasing Android Security using a Lightweight OVAL-based Vulnerability Assessment Framework.- 4: A Declarative Logic-based Approach for Threat Analysis of Advanced Metering Infrastructure.- 5: Risk based Access Control using Classification.- 6: GCNav - Generic Configuration Navigation System.- 7: The Right Files at the Right Time.- 8: Rule Configuration Checking in Secure Cooperative Data Access.- 9: Programmable[...]

### Fields of interest

Systems and Data Security; Data Encryption; Computer Communication Networks

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-01432-6](http://www.springer.com/978-3-319-01432-6)

### Hardcover

2013. VIII, 187 p. 62 illus.  
ISBN 978-3-319-01432-6

**Due: October 31, 2013**

E. Ogston, University of Warwick, Coventry, United Kingdom

## Autonomic Clustering of Distributed Agents

A central principle in the design of large-scale distributed systems is that components should be organized to place those that interact frequently close together. This is essentially a basic clustering problem, but the context creates new challenges. Traditional clustering algorithms are designed to work on relatively simple units of information stored in a centralized database. This work explores the consequences of clustering autonomous entities, each with individual, possibly different, criteria defining similarity and cluster composition requirements. In this setting clustering is transformed from being mainly a categorization task, into a problem of discovering similarity[...]

### Features

A central principle in the design of large-scale distributed systems is that components should be organized to place those that interact frequently close together. This is essentially a basic clustering problem, but the context creates new challenges. Traditional clustering algorithms are designed to work on relatively simple units of information stored in a centralized database. This work explores the [...]

### Contents

Preface.- 1 Introduction.- 2 Model and Notation.- 3 Matchmaking.- 4 Auctions.- 5 Grouping Matchmaking Agents.- 6 Clustering 2D Spatial Data.- 7 Clustering Text.- 8 Adaptive Clusters.- 9 Summation.- Bibliography.

### Fields of interest

Computer Systems Organization and Communication Networks; Computer Communication Networks; Artificial Intelligence (incl. Robotics)

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-7643-9966-5](http://www.springer.com/978-3-7643-9966-5)

### Softcover

2013. Approx. 160 p. (Autonomic Systems)  
ISBN 978-3-7643-9966-5

**Due: December 31, 2013**

K. Haataja, University of Eastern Finland, Kuopio, Finland; K. Hypönen, University of Eastern Finland, Kuopio, Finland; S. Pasanen, University of Eastern Finland, Kuopio, Finland; P. Toivanen, University of Eastern Finland, Kuopio, Finland

## Bluetooth Security Attacks

### Comparative Analysis, Attacks, and Countermeasures

Bluetooth technology has enjoyed tremendous success, and it's now employed in billions of devices for short-range wireless data and real-time audio or video transfer. In this book the authors provide an overview of Bluetooth security. They examine network vulnerabilities and provide a literature-review comparative analysis of recent security attacks. They analyze and explain related countermeasures, including one based on secure simple pairing, and they also propose a novel attack that works against all existing Bluetooth versions. They conclude with a discussion on future research directions. The book is appropriate for practitioners and researchers in information security, in[...]

### Features

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### Contents

Chap. 1 - Introduction.- Chap. 2 - Overview of Bluetooth Security.- Chap. 3 - Bluetooth Network Vulnerabilities.- Chap. 4 - Comparative Analysis of Bluetooth Security Attacks.- Chap. 5 - Meet-in-the-Middle (MITM) Attacks on Bluetooth.- Chap. 6 - Countermeasures.- Chap. 7 - New Practical Attack.- Chap. 8 - Conclusion and Future Work References.

### Fields of interest

Data Structures, Cryptology and Information Theory; Systems and Data Security; Computer Communication Networks; Security Science and Technology

### Target groups

Professional/practitioner

### Type of publication

Brief

More on [www.springer.com/978-3-642-40645-4](http://www.springer.com/978-3-642-40645-4)

### Softcover

2013. IV, 92 p. 31 illus. (SpringerBriefs in Computer Science)

ISBN 978-3-642-40645-4

**Due: October 31, 2013**

J. Vince, Bournemouth University, Poole, United Kingdom

## Calculus for Computer Graphics

Students studying computer animation and computer games have to be familiar with geometry, matrices, vectors, rotation transforms, quaternions, curves and surfaces, and as computer graphics software becomes increasingly sophisticated, calculus is also being used to resolve its associated problems. The author draws upon his experience in teaching mathematics to undergraduates to make calculus appear no more challenging than any other branch of mathematics. He introduces the subject by examining how functions depend upon their independent variables, and then derives the appropriate mathematical underpinning and definitions. This gives rise to a function's derivative and its[...]

### Features

Students studying computer animation and computer games have to be familiar with geometry, matrices, vectors, rotation transforms, quaternions, curves and surfaces, and as computer graphics software becomes increasingly sophisticated, calculus is also being used to resolve its associated problems. The author draws upon his experience in teaching mathematics to undergraduates to make calculus appear no [...]

### Contents

Preface.- Introduction.- Functions.- Limits and Derivatives.- Derivatives and Antiderivatives.- Higher Derivatives.- Partial Derivatives.- Integral Calculus.- Area Under a Graph.- Arc Length.- Surface Area.- Volume.- Vector-Valued Functions.- Conclusion.- Appendices.- Index.

### Fields of interest

Computer Graphics; Mathematical Applications in Computer Science

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-1-4471-5465-5](http://www.springer.com/978-1-4471-5465-5)

### Softcover

2013. XIII, 227 p. 144 illus.

ISBN 978-1-4471-5465-5

**usually dispatched within 3 to 5 business days**

M.M. Richter, TU Kaiserslautern, Kaiserslautern, Germany; R. Weber

## Case-Based Reasoning

### A Textbook

While it is relatively easy to record billions of experiences in a database, the wisdom of a system is not measured by the number of its experiences but rather by its ability to make use of them. Case-based reasoning (CBR) can be viewed as experience mining, with analogical reasoning applied to problem-solution pairs. As cases are typically not identical, simple storage and recall of experiences is not sufficient, we must define and analyze similarity and adaptation. The fundamentals of the approach are now well-established, and there are many successful commercial applications in diverse fields, attracting interest from researchers across various disciplines. This textbook presents[...]

### Features

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### Contents

Part I - Basics and Preliminaries.- Chap. 1 - Introduction.- Chap. 2 - Basic CBR Elements.- Chap. 3 - Extended View.- Chap. 4 - Application Examples.- Part II - Core Methods.- Chap. 5 - Case Representations.- Chap. 6 - Basic Similarity Topics.- Chap. 7 - Complex Similarity Topics.- Chap. 8 - Retrieval.- Chap. 9 - Adaptation.- Chap. 10 - Evaluation, Revisions, and Learning.- Chap. 11 - Development and Maintenance.- Part III - Advanced Elements.- Chap. 12 - Advanced CBR Elements.- Chap. 13 - Advanced Similarity Topics.- Chap. 14 - Advanced Retrieval.- Chap. 15 - Uncertainty.- Chap. 16 - [...]

### Fields of interest

Artificial Intelligence (incl. Robotics); Business Information Systems; Information Systems and Communication Service; Computer Applications

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-40166-4](http://www.springer.com/978-3-642-40166-4)

### Hardcover

2013. XVIII, 546 p. 180 illus., 7 illus. in color.

ISBN 978-3-642-40166-4

**Due: October 31, 2013**

G. Rakocevic, Serbian Academy of Sciences and Arts, Belgrade, Serbia; T. Djukic, University of Kragujevac, Kragujevac, Serbia; N. Filipovic, University of Kragujevac, Kragujevac, Serbia; V. Milutinovic, University of Belgrade, Belgrade, Serbia (Eds.)

## Computational Medicine in Data Mining and Modeling

This book presents an overview of a variety of contemporary statistical, mathematical and computer science techniques which are used to further the knowledge in the medical domain. The authors focus on applying data mining to the medical domain, including mining the sets of clinical data typically found in patient's medical records, image mining, medical mining, data mining and machine learning applied to generic genomic data and more. This work also introduces modeling behavior of cancer cells, multi-scale computational models and simulations of blood flow through vessels by using patient-specific models. The authors cover different imaging techniques used to generate[...]

### Features

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### Contents

Mining Clinical Data.- Applications of probabilistic and related logics to decision support in medicine.- Transforming electronic medical books to diagnostic decision support systems using relational database management systems.- Text mining in medicine.- A primer on information theory, with applications to neuroscience.- Machine Learning based Imputation of Missing SNP Genotypes in SNP Genotype Arrays.- Computer modeling of atherosclerosis.- Particle dynamics and design of nano-drug delivery systems.- Computational Modeling of Ultrasound Wave Propagation in Bone.

### Fields of interest

Data Mining and Knowledge Discovery; Computational Biology / Bioinformatics; Artificial Intelligence (incl. Robotics); Simulation and Modeling

### Target groups

Graduate

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-8784-5](http://www.springer.com/978-1-4614-8784-5)

### Hardcover

2013. X, 376 p. 171 illus., 128 illus. in color.  
ISBN 978-1-4614-8784-5

**Due: October 31, 2013**

G. Baldassarre, Istituto di Scienze e Tecnologie, Rome, Italy; M. Mirulli, Istituto di Scienze e Tecnologie, Rome, Italy (Eds.)

## Computational and Robotic Models of the Hierarchical Organization of Behavior

Current robots and other artificial systems are typically able to accomplish only one single task. Overcoming this limitation requires the development of control architectures and learning algorithms that can support the acquisition and deployment of several different skills, which in turn seems to require a modular and hierarchical organization. In this way, different modules can acquire different skills without catastrophic interference, and higher-level components of the system can solve complex tasks by exploiting the skills encapsulated in the lower-level modules. While machine learning and robotics recognize the fundamental importance of the hierarchical organization of behavior[...]

### Features

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### Contents

Chap. 1 - Computational and Robotic Models of the Hierarchical Organization of Behavior: An Overview.- Chap. 2 - Behavioral Hierarchy: Exploration and Representation.- Chap. 3 - Self-organized Functional Hierarchy Through Multiple Timescales: Neurodynamical Accounts for Behavioral Compositionality.- Chap. 4 - Autonomous Representation Learning in a Developing Agent.- Chap. 5 - Hierarchies for Embodied Action Perception.- Chap. 6 - Learning and Coordinating Repertoires of Behaviors with Common Reward: Credit Assignment and Module Activation.- Chap. 7 - Modular, Multimodal Arm Control[...]

### Fields of interest

Artificial Intelligence (incl. Robotics); Control, Robotics, Mechatronics; Computational Intelligence; Neurosciences; Psychology Research

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39874-2](http://www.springer.com/978-3-642-39874-2)

### Hardcover

2013. IV, 385 p. 116 illus., 43 illus. in color.  
ISBN 978-3-642-39874-2

**Due: October 31, 2013**

H. Bunt, Tilburg University, Tilburg, Netherlands; J. Bos, S. Pulman (Eds.)

## Computing Meaning

Volume 4

This book is a collection of papers by leading researchers in computational semantics. It presents a state-of-the-art overview of recent and current research in computational semantics, including descriptions of new methods for constructing and improving resources for semantic computation, such as WordNet, VerbNet, and semantically annotated corpora. It also presents new statistical methods in semantic computation, such as the application of distributional semantics in the compositional calculation of sentence meanings. Computing the meaning of sentences, texts, and spoken or texted dialogue is the ultimate challenge in natural language processing, and the key to a wide range of[...]

### Features

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### Contents

Computing Meaning: Annotation, Representation, and Inference by Harry Bunt, Johan Bos, and Stephen Pulman .- Part I Semantic Representation and Compositionality . Deterministic Statistical Mapping of Sentences to Underspecified Semantics by Hiyun Alshawi, Pi-Chuan Chang, and Michael Ringgaard .- A formal approach to linking logical form and vector-space lexical semantics by Dan Garrette, Katrin Erk, and Raymond Mooney .- Annotations that effectively contribute to semantic interpretation by Harry Bunt .- Concrete Sentence Spaces for Compositional Distributional Models of Meaning by[...]

### Fields of interest

Computing Methodologies; Computational Linguistics; Computer Appl. in Arts and Humanities; Semantics

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-94-007-7283-0](http://www.springer.com/978-94-007-7283-0)

### Hardcover

2014. VIII, 260 p. 13 illus. (Text, Speech and Language Technology, Vol. 47)  
ISBN 978-94-007-7283-0

**usually dispatched within 3 to 5 business days  
October 31, 2013**

Th. Bäck, Leiden University, Leiden, Netherlands; C. Foussette, divis intelligent solutions GmbH, Dortmund, Germany; P. Krause, divis intelligent solutions GmbH, Dortmund, Germany

## Contemporary Evolution Strategies

Evolution strategies have more than 50 years of history in the field of evolutionary computation. Since the early 1990s, many algorithmic variations of evolution strategies have been developed, characterized by the fact that they use the so-called derandomization concept for strategy parameter adaptation. Most importantly, the covariance matrix adaptation strategy (CMA-ES) and its successors are the key representatives of this group of contemporary evolution strategies. This book provides an overview of the key algorithm developments between 1990 and 2012, including brief descriptions of the algorithms, a unified pseudocode representation of each algorithm, and program code which is[...]

### Features

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### Contents

Chap. 1 - Introduction.- Chap. 2 - Evolution Strategies.- Chap. 3 - Taxonomy of Evolution Strategies.- Chap. 4 - Empirical Analysis.- Chap. 5 - Summary.- List of Figures.- List of Algorithms.- Bibliography.

### Fields of interest

Algorithm Analysis and Problem Complexity; Computational Intelligence; Artificial Intelligence (incl. Robotics); Optimization

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40136-7](http://www.springer.com/978-3-642-40136-7)

### Hardcover

2013. XIII, 90 p. 33 illus. (Natural Computing Series)  
ISBN 978-3-642-40136-7

**Due: October 31, 2013**

B. Applebaum, Tel-Aviv University, Tel-Aviv, Israel

## Cryptography in Constant Parallel Time

Locally computable (NC0) functions are "simple" functions for which every bit of the output can be computed by reading a small number of bits of their input. The study of locally computable cryptography attempts to construct cryptographic functions that achieve this strong notion of simplicity and simultaneously provide a high level of security. Such constructions are highly parallelizable and they can be realized by Boolean circuits of constant depth. This book establishes, for the first time, the possibility of local implementations for many basic cryptographic primitives such as one-way functions, pseudorandom generators, encryption schemes and digital signatures. It also extends[...]

### Features

Locally computable (NC0) functions are "simple" functions for which every bit of the output can be computed by reading a small number of bits of their input. The study of locally computable cryptography attempts to construct cryptographic functions that achieve this strong notion of simplicity and simultaneously provide a high level of security. Such constructions are highly parallelizable and [...]

### Contents

Introduction.- Preliminaries and Definitions.- Randomized Encoding of Functions.- Cryptography in NC0.- Computationally Private Randomizing Polynomials and Their Applications.- On Pseudorandom Generators with Linear Stretch in NC0.- Cryptography with Constant Input Locality.- One-Way Functions with Optimal Output Locality.- App. A, On Collections of Cryptographic Primitives.

### Fields of interest

Mathematics of Computing; Data Structures, Cryptology and Information Theory

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-17366-0](http://www.springer.com/978-3-642-17366-0)

### Hardcover

2013. XVIII, 190 p. 5 illus. (Information Security and Cryptography)  
ISBN 978-3-642-17366-0

**Due: September 30, 2013**

M. Garofalakis, Bell Laboratories, Murray Hill, USA; J. Gehrke, Cornell University, Ithaca, USA; R. Rastogi, Bell Laboratories, Murray Hill, USA (Eds.)

## Data Stream Management

### Processing High-Speed Data Streams

Traditional Database Management Systems are built on the concept of persistent data sets, that are stored reliably in stable storage and queried/updated several times throughout their lifetime. For several emerging application domains, however, data arrives and needs to be processed on a continuous (24x7) basis, and they need data-processing algorithms and systems that work over continuous data streams. This book is the first in-depth treatment of this important topic, covering basic data stream techniques, data stream synopses, mining data streams, advanced data stream computations, and systems and architectures for data stream management systems.

### Features

Traditional Database Management Systems are built on the concept of persistent data sets, that are stored reliably in stable storage and queried/updated several times throughout their lifetime. For several emerging application domains, however, data arrives and needs to be processed on a continuous (24x7) basis, and they need data-processing algorithms and systems that work over continuous data streams. [...]

### Contents

Part I: Introduction.- Part II: Computation of Basic Stream Synopses.- Part III: Mining Data Streams.- Part IV: Advanced Topics.- Part V: Systems and Architectures.- Part VI: Applications.

### Fields of interest

Database Management; Information Storage and Retrieval; Computer Applications; Signal, Image and Speech Processing

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-540-28607-3](http://www.springer.com/978-3-540-28607-3)

### Hardcover

2014. Approx. 400 p. (Data-Centric Systems and Applications)  
ISBN 978-3-540-28607-3

**Due: February 2014**

C. Maciel, Federal University of Mato Grosso, Cuiabá, Brazil; V.C. Pereira, Federal University of Mato Grosso, Cuiabá, Brazil (Eds.)

## Digital Legacy and Interaction

### Post-Mortem Issues

The views of leading researchers on the emerging topic of post-mortem digital legacy and posthumous interaction are explored in this book which combines the technical, cultural and legal aspects associated with this new branch of HCI. The technical aspects of emerging technologies, both for the web and mobile platforms, are analysed and useful information is provided for system development, requirements engineering, and data management and storage. The authors address the cultural aspects of virtual identity, ethical problems, cross-culture differences regarding memories and death, bereavement, taboos and beliefs, and the visual/verbal representations of death. The legal aspects[...]

### Features

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### Contents

Preface.- The Fate of Digital Legacy in Software Engineers' View: Technical and Cultural Aspects.- Living with the Dead: Emergent Post-Mortem Digital Curation and Creation Practices.- The Persistence of Memory Online: Digital Memorials, Fantasy, and Grief as Entertainment.- The Internet Generation and the Posthumous Interaction.- Narrating the Digital: The Evolving Memento Mori.- Tombstone Technology: Deathscapes in Asia, the U.K. and the U.S.- "What Happens to my Facebook Profile when I Die?": Legal Issues Around Transmission of Digital Assets on Death.

### Fields of interest

User Interfaces and Human Computer Interaction; Computer Appl. in Social and Behavioral Sciences; Interdisciplinary Studies; Legal Aspects of Computing

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-01630-6](http://www.springer.com/978-3-319-01630-6)

### Hardcover

2013. XII, 144 p. 4 illus., 3 illus. in color. (Human-Computer Interaction Series)  
ISBN 978-3-319-01630-6

**Due: October 31, 2013**

N. Jonoska, University of South Florida, Tampa, USA; M. Saito, University of South Florida, Tampa, USA (Eds.)

## Discrete and Topological Models in Molecular Biology

Theoretical tools and insights from discrete mathematics, theoretical computer science, and topology now play essential roles in our understanding of vital biomolecular processes. The related methods are now employed in various fields of mathematical biology as instruments to "zoom in" on processes at a molecular level. This book contains expository chapters on how contemporary models from discrete mathematics – in domains such as algebra, combinatorics, and graph and knot theories – can provide perspective on biomolecular problems ranging from data analysis, molecular and gene arrangements and structures, and knotted DNA embeddings via spatial graph models to the dynamics and[...]

### Features

Theoretical tools and insights from discrete mathematics, theoretical computer science, and topology now play essential roles in our understanding of vital biomolecular processes. The related methods are now employed in various fields of mathematical biology as instruments to "zoom in" on processes at a molecular level. This book contains expository chapters on how contemporary models from discrete [...]

### Contents

Chap. 1 - Perspectives in Computational Genome Analysis.- Chap. 2 - The Sequence Reconstruction Problem.- Chap. 3 - Extracting Coevolving Characters from a Tree of Species.- Chap. 4 - When and How the Perfect Phylogeny Model Explains Evolution.- Chap. 5 - An Invitation to the Study of Brain Networks with Some Statistical Analysis of Thresholding Techniques.- Chap. 6 - Simplicial Models and Topological Inference in Biological Systems.- Chap. 7 - Combinatorial Insights into RNA Secondary Structure.- Chap. 8 - Redundant and Critical Noncovalent Interactions in Protein Rigid Cluster[...]

### Fields of interest

Theory of Computation; Mathematical and Computational Biology; Evolutionary Biology; Systems Biology; Cell Biology; Biological Networks, Systems Biology

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40192-3](http://www.springer.com/978-3-642-40192-3)

### Hardcover

2013. X, 579 p. 209 illus., 152 illus. in color. (Natural Computing Series)  
ISBN 978-3-642-40192-3

**Due: September 30, 2013**

M.D. Lozano, University of Castilla-La Mancha, Albacete, Spain; J.A. Gallud, University of Castilla-La Mancha, Albacete, Spain; R. Tesoriero, University of Castilla-La Mancha, Albacete, Spain; V.M.R. Penichet, University of Castilla-La Mancha, Albacete, Spain (Eds.)

## Distributed User Interfaces: Usability and Collaboration

Written by international researchers in the field of Distributed User Interfaces (DUIs), this book brings together important contributions regarding collaboration and usability in Distributed User Interface settings. Throughout the thirteen chapters authors address key questions concerning how collaboration can be improved by using DUIs, including:in which situations a DUI is suitable to ease the collaboration among users;how usability standards can be used to evaluate the usability of systems based on DUIs;and accurately describe case studies and prototypes implementing these concerns. Under a collaborative scenario, users sharing common goals may take advantage of DUI environments[...]

### Features

Written by international researchers in the field of Distributed User Interfaces (DUIs), this book brings together important contributions regarding collaboration and usability in Distributed User Interface settings. Throughout the thirteen chapters authors address key questions concerning how collaboration can be improved by using DUIs, including:in which situations a DUI is suitable to ease [...]

### Contents

Preface.- Revisiting the Concept of Distributed User Interfaces.- Improving DUIs with a Decentralized Approach with Transactions and Feedbacks.- Distributed UI on Interactive Tabletops: Issues and Context Model.- Collaborative Contents Creation using Web-based Distributed User Interface (DUI).- TwisterSearch: A Distributed User Interface for Collaborative Web Search.- Integration of Collaborative Features in Ubiquitous and Context-aware Systems using Distributed User Interfaces.- A Framework for a priori Evaluation of Multimodal User Interfaces Supporting Cooperation.- Enhancing the[...]

### Fields of interest

User Interfaces and Human Computer Interaction; Multimedia Information Systems

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4471-5498-3](http://www.springer.com/978-1-4471-5498-3)

### Hardcover

2013. XIII, 163 p. 75 illus., 74 illus. in color. (Human-Computer Interaction Series)  
ISBN 978-1-4471-5498-3

**Due: October 31, 2013**

J.P. Bowen, S. Keene, K. Ng (Eds.)

## Electronic Visualisation in Arts and Culture

Presenting the latest technological developments in arts and culture, this volume demonstrates the advantages of a union between art and science. Electronic Visualisation in Arts and Culture is presented in five parts: Imaging and Culture, New Art Practice, Seeing Motion, Interaction and Interfaces, Visualising Heritage. Electronic Visualisation in Arts and Culture explores a variety of new theory and technologies, including devices and techniques for motion capture for music and performance, advanced photographic techniques, computer generated images derived from different sources, game engine software, airflow to capture the motions of bird flight and low-altitude imagery from airborne[...]

### Features

Presenting the latest technological developments in arts and culture, this volume demonstrates the advantages of a union between art and science. Electronic Visualisation in Arts and Culture is presented in five parts: Imaging and Culture, New Art Practice, Seeing Motion, Interaction and Interfaces, Visualising Heritage. Electronic [..]

### Contents

Foreword.- Preface.- The EVA London Conference 1990–2012: Personal Reflections.- Part I – Imaging and Culture.- From Descriptions to Duplicates to Data.- Quantifying Culture: Four Types of Value in Visualisation.- Embodied Airborne Imagery: Low-Altitude Cinematic Urban Topography.- Back to Paper? An Alternative Approach to Conserving Digital Images into the 23rd Century.- Part II – New Art Practice.- Light Years: Jurassic Coast – An Immersive 3D Landscape Project.- Photography as a Tool of Alienation: Aura.- Fugue and Variations on some Themes in Art and Science.- Part III – Seeing[...]

### Fields of interest

Computer Imaging, Vision, Pattern Recognition and Graphics; User Interfaces and Human Computer Interaction; Cultural Studies; Cultural Heritage; Arts; Computer Appl. in Arts and Humanities

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4471-5405-1](http://www.springer.com/978-1-4471-5405-1)

### Hardcover

2013. XII, 291 p. 130 illus., 92 illus. in color. (Springer Series on Cultural Computing)  
ISBN 978-1-4471-5405-1

usually dispatched within 3 to 5 business days

B. Schölkopf, Max Planck Inst. for Intelligent Systems, Tübingen, Germany; Z. Luo, Royal Holloway, University of London, Egham, United Kingdom; V. Vovk, University of London, Egham, Surrey, United Kingdom (Eds.)

## Empirical Inference

Festschrift in Honor of Vladimir N. Vapnik

Vladimir Vapnik is a rare example of a scientist for whom the following three statements hold true simultaneously: his work has led to the inception of a whole new field of research, he has lived to see the field blossom and gain in popularity, and he is still active as ever in his field. His field, the theory of statistical learning and empirical inference, did not exist when he started his PhD in Moscow in the early 1960s. He started analyzing learning algorithms and invented the first version of a pattern recognition algorithm termed the “Generalized Portrait”. He later developed one of the most successful methods in machine learning, the support vector machine (SVM). Based on an[...]

### Features

Vladimir Vapnik is a rare example of a scientist for whom the following three statements hold true simultaneously: his work has led to the inception of a whole new field of research, he has lived to see the field blossom and gain in popularity, and he is still active as ever in his field. His field, the theory of statistical learning and empirical inference, did not exist when he started his PhD in Moscow in [..]

### Contents

Part I - History of Statistical Learning Theory.- Chap. 1 - In Hindsight: Doklady Akademii Nauk SSSR, 181(4), 1968.- Chap. 2 - On the Uniform Convergence of the Frequencies of Occurrence of Events to Their Probabilities.- Chap. 3 - Early History of Support Vector Machines.- Part II - Theory and Practice of Statistical Learning Theory.- Chap. 4 - Some Remarks on the Statistical Analysis of SVMs and Related Methods.- Chap. 5 - Explaining AdaBoost.- Chap. 6 - On the Relations and Differences Between Popper Dimension, Exclusion Dimension and VC-Dimension.- Chap. 7 - On Learnability,[...]

### Fields of interest

Artificial Intelligence (incl. Robotics); Statistical Theory and Methods; Probability and Statistics in Computer Science; Optimization

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-41135-9](http://www.springer.com/978-3-642-41135-9)

### Hardcover

2013. XXVI, 293 p. 61 illus., 39 illus. in color.  
ISBN 978-3-642-41135-9

Due: November 30, 2013

A. Bassi, Hitachi Europe Ltd., Maidenhead, United Kingdom; M. Bauer, NEC Europe Ltd., London, United Kingdom; M. Fiedler, Fraunhofer Gesellschaft IML, Dortmund, Germany; T. Kramp, IBM Research, Rüschlikon, Switzerland; R. Kranenburg, Internet of People Ltd., London, United Kingdom; S. Lange, Deloitte&Touche GmbH, Berlin, Germany; S. Meissner, University of Surrey, Guildford, United Kingdom (Eds.)

## Enabling Things to Talk

Designing IoT solutions with the IoT Architectural Reference Model

The Internet of Things (IoT) is an emerging network superstructure that will connect physical resources and actual users. It will support an ecosystem of smart applications and services bringing hyper-connectivity to our society by using augmented and rich interfaces. Whereas in the beginning IoT referred to the advent of barcodes and Radio Frequency Identification (RFID), which helped to automate inventory, tracking and basic identification, today IoT is characterized by a dynamic trend toward connecting smart sensors, objects, devices, data and applications. The next step will be “cognitive IoT,” facilitating object and data re-use across application domains and leveraging[...]

### Features

The Internet of Things (IoT) is an emerging network superstructure that will connect physical resources and actual users. It will support an ecosystem of smart applications and services bringing hyper-connectivity to our society by using augmented and rich interfaces. Whereas in the beginning IoT referred to the advent of barcodes and Radio Frequency Identification (RFID), which helped to automate [..]

### Contents

Introduction to the Internet of Things.- The Need for a Common Ground for the IoT — The History and Reasoning Behind the IoT — A Project.- The IoT Architectural Reference Model as Enabler.- IoT in Practice: Examples — IoT in Logistics and Health.- IoT — A Guidance to the ARM.- A Process to Generate Concrete Architectures.- IoT Reference Model.- IoT Reference Architecture.- The IoT ARM Reference Manual.- Interactions.- Toward a Concrete Architecture.- ARM Testimonials.- Summary and Outlook.

### Fields of interest

Information Systems Applications (incl. Internet); Business Information Systems; Computer Appl. in Administrative Data Processing; Production / Logistics; Software Engineering; Special Purpose and Application-Based Systems

### Target groups

Professional/practitioner

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40402-3](http://www.springer.com/978-3-642-40402-3)

### Hardcover

2013. X, 274 p. 131 illus., 116 illus. in color.  
ISBN 978-3-642-40402-3

Due: October 31, 2013

D.R. Ferreira, Technical University of Lisbon, Porto Salvo, Portugal

## Enterprise Systems Integration

A Process-Oriented Approach

The field of enterprise systems integration is constantly evolving, as every new technology that is introduced appears to make all previous ones obsolete. Despite this continuous evolution, there is a set of underlying concepts and technologies that have been gaining an increasing importance in this field. Examples are asynchronous messaging through message queues, data and application adapters based on XML and Web services, the principles associated with the service-oriented architecture (SOA), service composition, orchestrations, and advanced mechanisms such as correlations and long-running transactions. Today, these concepts have reached a significant level of maturity and they[...]

### Features

The field of enterprise systems integration is constantly evolving, as every new technology that is introduced appears to make all previous ones obsolete. Despite this continuous evolution, there is a set of underlying concepts and technologies that have been gaining an increasing importance in this field. Examples are asynchronous messaging through message queues, data and application adapters based on XML [...]

### Contents

Part I Introduction.- Evolution of Enterprise Systems.- Introduction to BizTalk Server.- Part II Messaging.- Messaging Systems.- Message Brokers.- Part III Adapters.- Data Adapters.- Application Adapters.- Part IV Orchestrations.- Services and SOA.- Orchestration Flow.- Advanced Constructs.- Orchestrations with BPEL.- Part V Processes.- Process modeling with BPMN.- Inter-Organizational Processes.

### Fields of interest

Information Systems Applications (incl.Internet); Business Information Systems; Computer Appl. in Administrative Data Processing; Computer Communication Networks

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-40795-6](http://www.springer.com/978-3-642-40795-6)

### Hardcover

2013. XI, 386 p. 238 illus., 1 illus. in color.  
ISBN 978-3-642-40795-6

**Due: November 30, 2013**

S. Crespi Reghizzi, L. Breveglieri, Politecnico di Milano, Milano, Italy; A. Morzenti, Politecnico di Milano, Milano, Italy

## Formal Languages and Compilation

This revised and expanded new edition elucidates the elegance and simplicity of the fundamental theory underlying formal languages and compilation. Retaining the reader-friendly style of the 1st edition, this versatile textbook describes the essential principles and methods used for defining the syntax of artificial languages, and for designing efficient parsing algorithms and syntax-directed translators with semantic attributes. Features: presents a novel conceptual approach to parsing algorithms that applies to extended BNF grammars, together with a parallel parsing algorithm (NEW); supplies supplementary teaching tools at an associated website; systematically discusses ambiguous[...]

### Features

This fully revised and expanded new edition elucidates the elegance and simplicity of the fundamental theory underlying Formal Languages and Compilation. Retaining the reader-friendly, minimalist style of the first edition, this uniquely versatile textbook describes the essential principles and methods used for defining the syntax of artificial languages, and for designing efficient parsing [...]

### Contents

Introduction.- Syntax.- Finite Automata as Regular Language Recognizers.- Pushdown Automata and Parsing.- Translation Semantics and Static Analysis.

### Fields of interest

Mathematical Logic and Formal Languages

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4471-5513-3](http://www.springer.com/978-1-4471-5513-3)

### Hardcover

2013. XII, 397 p. 170 illus., 1 illus. in color. (Texts in Computer Science)  
ISBN 978-1-4471-5513-3

**Due: October 31, 2013**

J.C. Strassner, Pohang University of Science & Technology (WIT), Waterford, Ireland; B. Jennings, Waterford Institute of Technology (WIT), Waterford, Ireland

## Fundamentals of Autonomic Communications

Principles for Building Autonomic Systems

This book will serve as a comprehensive introduction to and reference for autonomic communication and systems. Autonomic technologies are designed to manage the increasing business, system, and technical complexity of computing systems. Systems built from these technologies are self-governing, and exhibit self-configuration, self-healing, and other capabilities. More importantly, autonomic systems reconnect business needs and objectives with the management of the underlying technology used to build them. This is the first reference book that explains how to build autonomic systems, and uses a set of real-world examples to blend academic theory with industrial practice and experience.[...]

### Features

This book will serve as a comprehensive introduction to and reference for autonomic communication and systems. Autonomic technologies are designed to manage the increasing business, system, and technical complexity of computing systems. Systems built from these technologies are self-governing, and exhibit self-configuration, self-healing, and other capabilities. More importantly, autonomic systems reconnect [...]

### Contents

PART ONE: FOUNDATIONS PART TWO: COMMUNICATION PART THREE: SYSTEM ARCHITECTURE PART FOUR: Blueprint for Building Real Systems APPENDICES

### Fields of interest

Computer Communication Networks; Computer Systems Organization and Communication Networks; Information Systems and Communication Service; Management of Computing and Information Systems; Information Systems Applications (incl.Internet); Information Storage and Retrieval

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-0346-0237-2](http://www.springer.com/978-3-0346-0237-2)

### Softcover

2013. Approx. 500 p. (Autonomic Systems)  
ISBN 978-3-0346-0237-2

**Due: December 31, 2013**

R.G. Downey, Victoria University, Wellington, New Zealand; M.R. Fellows, Charles Darwin University, Darwin, Australia

## Fundamentals of Parameterized Complexity

This comprehensive and self-contained textbook presents an accessible overview of the state of the art of multivariate algorithmics and complexity. Increasingly, multivariate algorithmics is having significant practical impact in many application domains, with even more developments on the horizon. The text describes how the multivariate framework allows an extended dialog with a problem, enabling the reader who masters the complexity issues under discussion to use the positive and negative toolkits in their own research. Features: describes many of the standard algorithmic techniques available for establishing parametric tractability; reviews the classical hardness classes; explores[...]

### Features

The field of parameterized complexity/multivariate complexity algorithmics is an exciting and vibrant part of theoretical computer science, responding to the vital need for efficient algorithms in modern society. This comprehensive and self-contained textbook presents an accessible overview of the state of the art of multivariate algorithmics and complexity. Increasingly, multivariate algorithmics is [...]

### Contents

Introduction.- Part I: Parameterized Tractability.- Preliminaries.- The Basic Definitions.- Part II: Elementary Positive Techniques.- Bounded Search Trees.- Kernelization.- More on Kernelization.- Iterative Compression, and Measure and Conquer, for Minimization Problems.- Further Elementary Techniques.- Colour Coding, Multilinear Detection, and Randomized Divide and Conquer.- Optimization Problems, Approximation Schemes, and Their Relation to FPT.- Part III: Techniques Based on Graph Structure.- Treewidth and Dynamic Programming.- Heuristics for Treewidth.- Automata and Bounded[...]

### Fields of interest

Algorithm Analysis and Problem Complexity; Mathematics of Algorithmic Complexity

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4471-5558-4](http://www.springer.com/978-1-4471-5558-4)

### Hardcover

2013. XXXVI, 812 p. 81 illus. (Texts in Computer Science) ISBN 978-1-4471-5558-4

**Due: November 5, 2013**

G. Alberts, University of Amsterdam, Amsterdam, Netherlands; R. Oldenziel, Eindhoven University of Technology, Eindhoven, Netherlands (Eds.)

## Hacking Europe

### From Computer Cultures to Demoscenes

Hacking Europe traces the user practices of chopping games in Warsaw, hacking software in Athens, creating chaos in Hamburg, producing demos in Turku, and partying with computing in Zagreb and Amsterdam. Focusing on several European countries at the end of the Cold War, the book shows the digital development was not an exclusively American affair. Local hacker communities appropriated the computer and forged new cultures around it like the hackers in Yugoslavia, Poland and Finland, who showed off their tricks and creating distinct "demoscenes." Together the essays reflect a diverse palette of cultural practices by which European users domesticated computer technologies. Each chapter[...]

### Features

Hacking Europe focuses on the playfulness that was at the heart of how European users appropriated microcomputers in the last quarter of the twentieth century. The essays argue that users--whether the design of the projected use of computers was detailed or still unfinished--assigned their own meanings to the machines in unintended ways. The book traces the user practices of chopping games in Warsaw, [...]

### Contents

Introduction: How European Players Captured the Computer and Created the Scenes.- Part I: Appropriating America: Making One's Own.- Transnational (Dis)connection in Localizing Personal Computing in the Netherlands, 1975-1990.- "Inside a Day You'll be Talking to it Like an Old Friend": The Making and Remaking of Sinclair Personal Computing in 1980s Britain.- Legal Pirates Ltd: Home Computing Cultures in Early 1980s Greece.- Part II: Illegitimate Sons in Between: Scenes.- Galaxy and the New Wave: Yugoslav Computer Culture in the 1980s.- Playing and Copying: Social Practices of Home[...]

### Fields of interest

History of Computing; Personal Computing; Computers and Society

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4471-5492-1](http://www.springer.com/978-1-4471-5492-1)

### Hardcover

2013. VIII, 254 p. 17 illus., 8 illus. in color. (History of Computing) ISBN 978-1-4471-5492-1

**Due: October 31, 2013**

P. Michelucci, ThinkSplash LLC, Fairfax, USA (Ed.)

## Handbook of Human Computation

This volume addresses the emerging area of human computation. The chapters, written by leading international researchers, explore existing and future opportunities to combine the respective strengths of both humans and machines in order to create powerful problem-solving capabilities. The book bridges scientific communities, capturing and integrating the unique perspective and achievements of each. It coalesces contributions from industry and across related disciplines in order to motivate, define, and anticipate the future of this exciting new frontier in science and cultural evolution. Readers can expect to find valuable contributions covering Foundations; Application Domains; [...]

### Features

This volume addresses the emerging area of human computation. The chapters, written by leading international researchers, explore existing and future opportunities to combine the respective strengths of both humans and machines in order to create powerful problem-solving capabilities. The book bridges scientific communities, capturing and integrating the unique perspective and achievements of each. It [...]

### Contents

Foundations in Human Computation.- Patterns of Connection.- Human Computation and Divided Labor: The Precursors of Modern Crowdsourcing.- Ant Colonies as a Model of Human Computation.- From Neural to Human Communication.- The Psychopathology of Information Processing Systems.- Information and Computation.- Epistemological Issues in Human Computation.- Synthesis and Taxonomy of Human Computation.- Human Computation in the Wild.- Human Computation for Disaster Response.- The Virtuous Circle of the Quantified Self: A Human Computation Approach to Improved Health Outcomes.- Knowledge[...]

### Fields of interest

Artificial Intelligence (incl. Robotics); User Interfaces and Human Computer Interaction; Data Mining and Knowledge Discovery; Computer Appl. in Social and Behavioral Sciences; Algorithm Analysis and Problem Complexity

### Target groups

Research

### Type of publication

Handbook

More on [www.springer.com/978-1-4614-8805-7](http://www.springer.com/978-1-4614-8805-7)

### Hardcover

2013. XXX, 1030 p. 239 illus., 199 illus. in color. ISBN 978-1-4614-8805-7

**Due: November 30, 2013**

B. Furht, Florida Atlantic University, Boca Raton, USA; A. Agarwal, Florida Atlantic University, Boca Raton, USA (Eds.)

## Handbook of Medical and Healthcare Technologies

This book equips readers to understand a complex range of healthcare products that are used to diagnose, monitor, and treat diseases or medical conditions affecting humans. The first part of the book presents medical technologies such as medical information retrieval, tissue engineering techniques, 3D medical imaging, nanotechnology innovations in medicine, medical wireless sensor networks, and knowledge mining techniques in medicine. The second half of the book focuses on healthcare technologies including prediction hospital readmission risk, modeling e-health framework, personal Web in healthcare, security issues for medical records, and personalized services in healthcare. The[...]

**Features**  
None.

### Contents

Mobile Medical and Healthcare Applications.- Medical Information Retrieval Enhanced with User's Query Expanded with Tag-Neighbors.- Medical Technology Breakthroughs in Tissue Engineering.- Innovations in #D Interventional X-ray Imaging.- Automated Classification of Echo-Cardiography Images Using Texture Analysis Methods.- Innovative Soft Computing Methodologies for Evaluating the Risk Factors of Atherosclerosis.- Nanotechnology and Its Applications in Medicine.- Anomaly Detection Scheme for Medical Wireless Sensor Networks.- Predicting the Outcome of Antihypertensive Therapy Using[...]

### Fields of interest

Health Informatics; Imaging / Radiology; Image Processing and Computer Vision; Communications Engineering, Networks; Biomedical Engineering

**Target groups**  
Research

**Type of publication**  
Handbook

More on [www.springer.com/978-1-4614-8494-3](http://www.springer.com/978-1-4614-8494-3)

### Hardcover

2013. X, 530 p. 205 illus.  
ISBN 978-1-4614-8494-3

**Due: September 30, 2013**

M. Cossentino, ICAR-CNR, Palermo, Italy; V. Hilaire, University of Technology, Belfort cedex, France; A. Molesini, Università di Bologna, Bologna, Italy; V. Seidita, University of Palermo, Palermo, Italy (Eds.)

## Handbook on Agent-Oriented Design Processes

To deal with the flexible architectures and evolving functionalities of complex modern systems, the agent metaphor and agent-based computing are often the most appropriate software design approach. As a result, a broad range of special-purpose design processes has been developed in the last several years to tackle the challenges of these specific application domains. In this context, in early 2012 the IEEE-FIPA Design Process Documentation Template SC0097B was defined, which facilitates the representation of design processes and method fragments through the use of standardized templates, thus supporting the creation of easily sharable repositories and facilitating the composition of[...]

### Features

To deal with the flexible architectures and evolving functionalities of complex modern systems, the agent metaphor and agent-based computing are often the most appropriate software design approach. As a result, a broad range of special-purpose design processes has been developed in the last several years to tackle the challenges of these specific application domains. In this context, in early 2012 the [..]

### Fields of interest

Software Engineering; Artificial Intelligence (incl. Robotics)

**Target groups**  
Research

**Type of publication**  
Handbook

More on [www.springer.com/978-3-642-39974-9](http://www.springer.com/978-3-642-39974-9)

### Hardcover

2014. Approx. 550 p.  
ISBN 978-3-642-39974-9

**Due: January 2014**

T. Bosse, VU University Amsterdam, Amsterdam, Netherlands; D.J. Cook, M. Neerincx, Delft University of Technology, Delft, Netherlands; F. Sadri, Imperial College London, London, United Kingdom (Eds.)

## Human Aspects in Ambient Intelligence

### Contemporary Challenges and Solutions

This book presents recent developments in the field of human aspects in Ambient Intelligence. This field, and the associated workshop series, addresses multidisciplinary aspects of AmI with human-directed disciplines such as psychology, social science, neuroscience and biomedical sciences. The aim of the workshop series is to get researchers together from these human-directed disciplines or working on cross connections of AmI with these disciplines. The focus is on the use of knowledge from these disciplines in AmI applications, in order to support humans in their daily living in medical, psychological and social respects. The book plays important role to get modellers in the[...]

### Features

This book presents recent developments in the field of human aspects in Ambient Intelligence. This field, and the associated workshop series, addresses multidisciplinary aspects of AmI with human-directed disciplines such as psychology, social science, neuroscience and biomedical sciences. The aim of the workshop series is to get researchers together from these human-directed disciplines or working on cross [..]

### Contents

A Clustering Approach to Intention Recognition.- Adaptive Autonomy in Unmanned Ground Vehicles Using Trust Models.- Automated Analysis of Non-Verbal Expressive Gesture.- Behaviometrics for Identifying Smart Home Residents.- SoundingARM - Assisted Representation of a Map.- Ambient Support by a Virtual Coach for Exercising and Rehabilitation.- Using Multiple Self Theory of Planner and Doer as a Virtual Coaching Framework for Changing Lifestyles: The role of Expert, Motivator and Mentor Coaches.- A Network of Sensor and Actuator Agents for Building Automation Systems.- From Mobile[...]

### Fields of interest

Artificial Intelligence (incl. Robotics); User Interfaces and Human Computer Interaction; Computer Applications; Health Informatics; Simulation and Modeling

**Target groups**  
Research

**Type of publication**  
Contributed volume

More on [www.springer.com/978-94-6239-017-1](http://www.springer.com/978-94-6239-017-1)

### Hardcover

2013. VIII, 172 p. 58 illus. (Atlantis Ambient and Pervasive Intelligence, Vol. 8)  
ISBN 978-94-6239-017-1

**usually dispatched within 3 to 5 business days**

M.D. Lytras, University of Patras, Patras, Greece; P. Ordóñez de Pablos, Universidad de Oviedo, Oviedo, Spain (Eds.)

## Information Technology, Information Systems and Knowledge Management

Information Technology, Information Systems and Knowledge Management comprises the proceedings of the first World Summit on the Knowledge Society (WSKS 2008), which took place in Athens, Greece in September 2008. The World Summit on the Knowledge Society is an international attempt to promote dialogue for the main aspects of the Knowledge Society towards a better world for all. The World Summit on the Knowledge Society brings together academics, people from industry, policy makers, politicians, government officers and active citizens to look at the impact of Information Technology, and the knowledge-based era it is creating, on key facets of today's world: the state, business, society[...]

### Features

Information Technology, Information Systems and Knowledge Management is based on the first World Summit on the Knowledge Society Proceedings (WSKS 2008). The WSKS proceedings will take place in Athens Greece, September 24th-28th, 2008. The World Summit on the Knowledge Society is an international attempt to promote the dialogue for the main aspects of the Knowledge [...]

### Contents

Preface.- Applications for the Human and the Society.- Information Systems and Information Technology.- Knowledge Management and E-learning.- Libraries, Digital Culture and Electronic Tourism.- E-business, E-government and E-banking.- Politics, Policies for the Knowledge Society.- Sustainable Development for the Knowledge Society.- New Competitive Resources: Culture, Tourism, Services.- Index.

### Fields of interest

Management of Computing and Information Systems; Technology Management; Business Information Systems; e-commerce / e-business

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-0-387-88750-0](http://www.springer.com/978-0-387-88750-0)

### Hardcover

2014. Approx. 450 p. 20 illus.  
ISBN 978-0-387-88750-0

**Due: November 28, 2013**

C. Meinel, Hasso-Plattner-Institut, Potsdam, Germany; H. Sack

## Internetworking

### Technological Foundations and Applications

This book is supposed to serve as a comprehensive and instructive guide through the new world of digital communication. On the physical layer optical and electrical cabling technology are described as well as wireless communication technologies. On the data link layer local area networks (LANs) are introduced together with the most popular LAN technologies such as Ethernet, Token Ring, FDDI, and ATM as well as wireless LAN technologies including IEEE 802.x, Bluetooth, or ZigBee. A wide range of WAN technologies are covered including contemporary high speed technologies like PDH and SDH up to high speed wireless WANs (WiMAX) and 4th generation wireless telephone networks LTE. Routing[...]

### Features

This book is supposed to serve as a comprehensive and instructive guide through the new world of digital communication. On the physical layer optical and electrical cabling technology are described as well as wireless communication technologies. On the data link layer local area networks (LANs) are introduced together with the most popular LAN technologies such as Ethernet, Token Ring, FDDI, and ATM as well as [...]

### Contents

Prologue.- The Foundation of the Internet : TCP/IP Reference Model.- Physical Layer.- Network Access Layer (1): Wired LAN Technologies.- Network Access Layer (2): Wireless Mobile LAN Technologies.- Network Access Layer (3): WAN Technologies.- Internet Layer.- Transport Layer.- Application Layer and Internet Applications.- Epilogue.- List of Persons.- Abbreviations and Acronyms.- Bibliography.- Index.

### Fields of interest

Computer Systems Organization and Communication Networks; Information Systems Applications (incl. Internet); Computer Communication Networks; Information Systems and Communication Service; Communications Engineering, Networks; Engineering Design

### Target groups

Professional/practitioner

### Type of publication

Professional book

More on [www.springer.com/978-3-642-35391-8](http://www.springer.com/978-3-642-35391-8)

### Hardcover

2013. XIII, 903 p. 426 illus. (X.media.publishing)  
ISBN 978-3-642-35391-8

**Due: October 31, 2013**

N. Saitou, Sokendai (Grad. Univ. for Adv. Studies), Mishima, Japan

## Introduction to Evolutionary Genomics

This book is the first of its kind to explain the fundamentals of evolutionary genomics. The comprehensive coverage includes concise descriptions of a variety of genome organizations, a thorough discussion of the methods used, and a detailed review of genome sequence processing procedures. The opening chapters also provide the necessary basics for readers unfamiliar with evolutionary studies. Features: introduces the basics of molecular biology, DNA replication, mutation, phylogeny, neutral evolution, and natural selection; presents a brief evolutionary history of life from the primordial seas to the emergence of humans; describes the genomes of prokaryotes, eukaryotes, vertebrates, [...]

### Features

Evolutionary genomics is a new discipline that bridges the fields of molecular evolution, bioinformatics and genomics in order to provide a unique perspective on the history of life. This easy-to-follow textbook is the first of its kind to explain the fundamentals of evolutionary genomics. The comprehensive coverage includes concise descriptions of a variety of genome organizations, a thorough [...]

### Contents

Part I: Basic Processes of Genome Evolution.- Basic Metabolism Surrounding DNAs.- Mutation.- Phylogeny.- Neutral Evolution.- Natural Selection.- Part II: Evolving Genomes.- Brief History of Life.- Prokaryote Genomes.- Eukaryote Genomes.- Vertebrate Genomes.- Human Genomes.- Part III: Methods for Evolutionary Genomics.- Genome Sequencing.- Omic Data Collection.- Databases.- Sequence Homology Handling.- Evolutionary Distances.- Tree and Network Building.- Population Genomics.

### Fields of interest

Computational Biology / Bioinformatics; Systems Biology; Microbial Genetics and Genomics; Plant Genetics and Genomics; Animal Genetics and Genomics

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4471-5303-0](http://www.springer.com/978-1-4471-5303-0)

### Hardcover

2013. XVI, 410 p. 227 illus. (Computational Biology, Vol. 17)

ISBN 978-1-4471-5303-0

**Due: November 7, 2013**

J.A. Buchmann, TU Darmstadt, Darmstadt, Germany; E. Karatsiolis, FlexSecure GmbH, Darmstadt, Germany; A. Wiesmaier, AGT International, Darmstadt, Germany

## Introduction to Public Key Infrastructures

The introduction of public key cryptography (PKC) was a critical advance in IT security. In contrast to symmetric key cryptography, it enables confidential communication between entities in open networks, in particular the Internet, without prior contact. Beyond this PKC also enables protection techniques that have no analogue in traditional cryptography, most importantly digital signatures which for example support Internet security by authenticating software downloads and updates. Although PKC does not require the confidential exchange of secret keys, proper management of the private and public keys used in PKC is still of vital importance: the private keys must remain private, and[...]

### Features

The introduction of public key cryptography (PKC) was a critical advance in IT security. In contrast to symmetric key cryptography, it enables confidential communication between entities in open networks, in particular the Internet, without prior contact. Beyond this PKC also enables protection techniques that have no analogue in traditional cryptography, most importantly digital signatures which for [...]

### Contents

Chap. 1 The Purpose of PKI.- Chap. 2 Certificates.- Chap. 3 Trust Models.- Chap. 4 Private Keys.- Chap. 5 Revocation.- Chap. 6 Validity Models.- Chap. 7 Certification Service Provider.- Chap. 8 Certificate Policies.- Chap. 9 Certification Paths: Retrieval and Validation.- Chap. 10 PKI in Practice.- App. A A Basic Path Validation Algorithm.- App. B Exercise Solutions.- Index.

### Fields of interest

Data Structures, Cryptology and Information Theory; Systems and Data Security; e-commerce / e-business; Security Science and Technology

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-40656-0](http://www.springer.com/978-3-642-40656-0)

### Hardcover

2013. VIII, 214 p.  
ISBN 978-3-642-40656-0

**Due: November 30, 2013**

M. Bramer, University of Portsmouth, Portsmouth, United Kingdom

## Logic Programming with Prolog

Logic Programming is the name given to a distinctive style of programming, very different from that of conventional programming languages such as C++ and Java. By far the most widely used Logic Programming language is Prolog. Prolog is a good choice for developing complex applications, especially in the field of Artificial Intelligence. Logic Programming with Prolog does not assume that the reader is an experienced programmer or has a background in Mathematics, Logic or Artificial Intelligence. It starts from scratch and aims to arrive at the point where quite powerful programs can be written in the language. It is intended both as a textbook for an introductory course and as a[...]

### Features

Logic Programming is the name given to a distinctive style of programming, very different from that of conventional programming languages such as C++ and Java. By far the most widely used Logic Programming language is Prolog. Prolog is a good choice for developing complex applications, especially in the field of Artificial Intelligence. Logic Programming with Prolog does not assume that the [...]

### Contents

Introduction.- Getting Started.- Clauses and Predicates.- Satisfying Goals.- Operators and Arithmetic.- Input and Output.- Loops.- Preventing Backtracking.- Changing the Prolog Database.- List Processing.- Strong Processing.- More Advanced Features.- Using Grammar Rules to Analyse English Sentences.- Prolog in Action.- Appendix 1 – Built-in Predicates.- Appendix 2 – Built-in Predicates.- Appendix 3 – Specimen Solutions to Practical Exercises.- Appendix 4 – Glossary.- Index.

### Fields of interest

Programming Languages, Compilers, Interpreters; Programming Techniques

### Target groups

Research

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-1-4471-5486-0](http://www.springer.com/978-1-4471-5486-0)

### Softcover

2013. XIV, 245 p. 44 illus.  
ISBN 978-1-4471-5486-0

**Due: October 31, 2013**

A. Marcus, Aaron Marcus and Assoc., Inc., Berkeley, USA

## Mobile Persuasion Design

Mobile Persuasion Design presents five conceptual design projects (or ‘Machines’) for new mobile applications (smartphone or tablet with Web portals) that combine theories of persuasion and information design to change people’s behavior. The Green Machine persuades home consumers to save energy. The Health Machine persuades people to change nutrition and exercise habits, so as to avoid obesity/diabetes. The Money Machine persuades baby boomers to improve wealth management and to spend and save appropriately. The Story Machine persuades family members to share more inter-generational stories among families that are geographically distributed and asynchronous, sometimes across multiple[...]

### Features

Mobile Persuasion Design presents five conceptual design projects (or ‘Machines’) for new mobile applications (smartphone or tablet with Web portals) that combine theories of persuasion and information design to change people’s behavior. The Green Machine persuades home consumers to save energy. The Health Machine persuades people to change nutrition and exercise habits, so as to avoid [...]

### Contents

Foreword.- Preface.- Contributors.- Introduction.- The Green Machine.- The Health Machine.- The Money Machine.- The Story Machine.- The Innovation Machine.- Index.

### Fields of interest

Computer Appl. in Social and Behavioral Sciences; Interdisciplinary Studies; Health Promotion and Disease Prevention; Sustainable Development; R & D / Technology Policy; Lifelong Learning / Adult Education

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4471-4323-9](http://www.springer.com/978-1-4471-4323-9)

### Hardcover

2015. XX, 300 p. 220 illus. (Computer Supported Cooperative Work)  
ISBN 978-1-4471-4323-9

**Due: November 30, 2014**

S. Bernardi, Centro Universitario de la Defensa, Zaragoza, Spain; J. Merseguer, Universidad de Zaragoza, Zaragoza, Spain; D.C. Petriu, Carleton University, Ottawa, Canada

## Model-Driven Dependability Assessment of Software Systems

Over the last two decades, a major challenge for researchers working on modeling and evaluation of computer-based systems has been the assessment of system Non Functional Properties (NFP) such as performance, scalability, dependability and security. In this book, the authors present cutting-edge model-driven techniques for modeling and analysis of software dependability. Most of them are based on the use of UML as software specification language. From the software system specification point of view, such techniques exploit the standard extension mechanisms of UML (i.e., UML profiling). UML profiles enable software engineers to add non-functional properties to the software model, in[...]

### Features

Over the last two decades, a major challenge for researchers working on modeling and evaluation of computer-based systems has been the assessment of system Non Functional Properties (NFP) such as performance, scalability, dependability and security. In this book, the authors present cutting-edge model-driven techniques for modeling and analysis of software dependability. Most of them are [...]

### Contents

1 Dependability Assessment and Software Lifecycle.- 2 Dependability Concepts.- 3 Software models.- 4 Dependability Domain Model.- 5 Dependability Modeling and Analysis Profile.- 6 Dependability Analysis Techniques.- 7 Proposals for Dependability Assessment.- 8 From Software Models to Dependability Analysis Models.- 9 Conclusions and Advanced Open Issues.- A The MARTE profile.- B Classes in the dependability domain model.

### Fields of interest

Software Engineering; Computation by Abstract Devices; System Performance and Evaluation

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39511-6](http://www.springer.com/978-3-642-39511-6)

### Hardcover

2013. XVI, 187 p.  
ISBN 978-3-642-39511-6

**Due: October 31, 2013**

S. Ali, SRI International, Princeton, USA; K. Nishino, Drexel University, Philadelphia, USA; D. Manocha, University of North Carolina, Chapel Hill, USA; M. Shah, University of Central Florida, Orlando, USA (Eds.)

## Modeling, Simulation and Visual Analysis of Crowds

### A Multidisciplinary Perspective

Over the last several years there has been a growing interest in developing computational methodologies for modeling and analyzing movements and behaviors of 'crowds' of people. This interest spans several scientific areas that includes Computer Vision, Computer Graphics, and Pedestrian Evacuation Dynamics. Despite the fact that these different scientific fields are trying to model the same physical entity (i.e. a crowd of people), research ideas have evolved independently. As a result each discipline has developed techniques and perspectives that are characteristically their own. The goal of this book to provide the readers a comprehensive map towards the common goal of better[...]

### Features

Over the last several years there has been a growing interest in developing computational methodologies for modeling and analyzing movements and behaviors of 'crowds' of people. This interest spans several scientific areas that includes Computer Vision, Computer Graphics, and Pedestrian Evacuation Dynamics. Despite the fact that these different scientific fields are trying to model the same physical entity [...]

### Contents

Modeling, Simulation and Visual Analysis of Crowds: A Multidisciplinary Perspective.- On Force-based Modeling of Pedestrian Dynamics.- Connection between Microscopic and Macroscopic Models.- Analysis of Crowd Dynamics with Laboratory Experiments.- Modeling a Crowd of Groups: Multidisciplinary and Methodological Challenges.- Scalable Solutions for Simulating, Animating, and Rendering Real-Time Crowds of Diverse Virtual Humans.- Authoring Multi-Actor Behaviors in Crowds with Diverse Personalities.- Virtual Tawaf: A Velocity-space-based Solution for Simulating Heterogeneous Behavior in[...]

### Fields of interest

Computer Imaging, Vision, Pattern Recognition and Graphics; Simulation and Modeling; Behavioural Sciences

### Target groups

Professional/practitioner

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-8482-0](http://www.springer.com/978-1-4614-8482-0)

### Hardcover

2013. XX, 418 p. 208 illus., 184 illus. in color. (The International Series in Video Computing, Vol. 11)  
ISBN 978-1-4614-8482-0

**Due: December 28, 2013**

C. Chauve, Simon Fraser University, Burnaby, Canada; N. El-Mabrouk, University of Montreal, Montreal, Canada; E. Tannier (Eds.)

## Models and Algorithms for Genome Evolution

This authoritative text/reference presents a review of the history, current status, and potential future directions of computational biology in molecular evolution. Gathering together the unique insights of an international selection of prestigious researchers, this must-read volume examines the latest developments in the field, the challenges that remain, and the new avenues emerging from the growing influx of sequence data. These viewpoints build upon the pioneering work of David Sankoff, one of the founding fathers of computational biology, and mark the 50th anniversary of his first scientific article. The broad spectrum of rich contributions in this essential collection will[...]

### Features

This authoritative text/reference presents a review of the history, current status, and potential future directions of computational biology in molecular evolution. Gathering together the unique insights of an international selection of prestigious researchers, this must-read volume examines the latest developments in the field, the challenges that remain, and the new avenues emerging from the growing [...]

### Contents

Part I: Emergence of Standard Algorithms.- What's Behind Blast.- Forty Years of Model-Based Phylogeography.- How to Infer Ancestral Genome Features by Parsimony.- Duplication, Rearrangement and Reconciliation.- The Genesis of the DCJ Formula.- Part II: New Lights on Current Paradigms.- Large-Scale Multiple Sequence Alignment and Phylogeny Estimation.- Rearrangements in Phylogenetic Inference.- Status of Research on Insertion and Deletion Variations in the Human Population.- A Retrospective on Genomic Preprocessing for Comparative Genomics.- A Comparison of DCJ and Algebraic Distances.-[...]

### Fields of interest

Computational Biology / Bioinformatics; Mathematical and Computational Biology; Bioinformatics; Mathematics of Computing

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4471-5297-2](http://www.springer.com/978-1-4471-5297-2)

### Hardcover

2013. XII, 328 p. 86 illus., 45 illus. in color. (Computational Biology, Vol. 19)  
ISBN 978-1-4471-5297-2

**usually dispatched within 3 to 5 business days  
October 2013**

X. Shi, University of Arkansas, Fayetteville, USA; V. Kindratenko, University of Illinois, Urbana, USA; C. Yang (Eds.)

## Modern Accelerator Technologies for Geographic Information Science

This book explores the impact of augmenting novel architectural designs with hardware-based application accelerators. The text covers comprehensive aspects of the applications in Geographic Information Science, remote sensing and deploying Modern Accelerator Technologies (MAT) for geospatial simulations and spatiotemporal analytics. MAT in GIS applications, MAT in remotely sensed data processing and analysis, heterogeneous processors, many-core and highly multi-threaded processors and general purpose processors are also presented. This book includes case studies and closes with a chapter on future trends. Modern Accelerator Technologies for GIS is a reference book for practitioners[...]

### Features

This book explores the impact of augmenting novel architectural designs with hardware-based application accelerators. The text covers comprehensive aspects of the applications in Geographic Information Science, remote sensing and deploying Modern Accelerator Technologies (MAT) for geospatial simulations and spatiotemporal analytics. MAT in GIS applications, MAT in remotely sensed data processing and analysis, [...]

### Contents

Modern Accelerator Technologies for GIS-science.- Introduction to GPGPU.- Intel® Xeon Phi™ Coprocessors.- Accelerating Geocomputation with Cloud Computing.- Parallel Primitives based Spatial Join of Geospatial Data on GPGPUs.- Utilizing CUDA-enabled GPUs to support 5D scientific geovisualization: a case study of simulating dust storm events.- A Parallel Algorithm to Solve Near-Shortest Path Problems on Raster Graphs.- CUDA-Accelerated HD-ODETLAP: Lossy High Dimensional Gridded Data Compression.- Accelerating Agent-Based Modeling Using Graphics Processing Units.- Large-Scale Pulse[...]

### Fields of interest

Information Systems Applications (incl.Internet); Geotechnical Engineering & Applied Earth Sciences; Computational Science and Engineering; Geographical Information Systems / Cartography; Remote Sensing / Photogrammetry; Algorithms

### Target groups

Graduate

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-8744-9](http://www.springer.com/978-1-4614-8744-9)

### Hardcover

2013. VII, 251 p. 75 illus., 51 illus. in color.

ISBN 978-1-4614-8744-9

Due: October 31, 2013

V.M.R. Penichet, University of Castilla-La Mancha, Albacete, Spain; A. Peñalver, University of Elche, Alicante, Spain; J.A. Galud, University of Castilla-La Mancha, Albacete, Spain (Eds.)

## New Trends in Interaction, Virtual Reality and Modeling

The interaction between a user and a device forms the foundation of today's application design. Covering the following topics: A suite of five structural principles helping designers to structure their mockups;An agile method for exploiting desktop eye tracker equipment in combination with mobile devices;An approach to explore large-scale collections based on classification systems;A framework based on the use of modeling and components composition techniques to simplify the development of organizational collaborative systems;A low-cost virtual reality system that provides highly satisfying virtual experiences;Popular hardware and software tools and technologies for developing[...]

### Features

The interaction between a user and a device forms the foundation of today's application design. Covering the following topics: A suite of five structural principles helping designers to structure their mockups;An agile method for exploiting desktop eye tracker equipment in combination with mobile devices;An approach to explore large-scale collections based on classification [...]

### Contents

Preface.- Validating a Method for Quantitative Mobile Usability Testing Based on Desktop Eye-tracking.- An Approach to Explore Large-scale Collections based on Classification Schemes.- A Framework for the Improvement of Collaboration and Human-Computer-Human Interaction in Organizational Environments.- ORION: One More Step in Virtual Reality Interaction.- Towards the Commodification of Augmented Reality: Tools & Platforms.- A VRPN Server for Haptic Devices using OpenHaptics 3.0.- Tangible User Interfaces: A New Trend in Interaction for Helping Children with Down Syndrome to Develop[...]

### Fields of interest

User Interfaces and Human Computer Interaction; Simulation and Modeling; Media Design

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4471-5444-0](http://www.springer.com/978-1-4471-5444-0)

### Hardcover

2013. XIII, 141 p. 62 illus., 44 illus. in color. (Human-

Computer Interaction Series)

ISBN 978-1-4471-5444-0

Due: September 30, 2013

D. Draheim, Universität Innsbruck, Innsbruck, Austria

## Pathways in Software Engineering

On the Development and Operations of Large-Scale Software Systems

Software is pervasive in today's technical systems in industry and everyday life. Modern enterprises strategically invest into software and often have their own software development departments. Software engineering is the exciting discipline that addresses the challenges of today's software projects: cost and time pressure and software quality. This book aims at uncovering the implicit assumptions of today's leading software engineering paradigms. It presents knowledge shared by seasoned experts in the field which is usually gained by experience in software engineering projects or communication between software engineers only. This way, the book wants to empower the ambitious[...]

### Features

Software is pervasive in today's technical systems in industry and everyday life. Modern enterprises strategically invest into software and often have their own software development departments. Software engineering is the exciting discipline that addresses the challenges of today's software projects: cost and time pressure and software quality. This book aims at uncovering the implicit assumptions of today's [...]

### Contents

Introduction.- Software Engineering Case Studies.- Requirements Elicitation Specification.- System Analysis.- Data Modeling.- Object-Oriented Analysis.- Object-Oriented Design.- Structured Analysis.- Task Modeling.- Software Ergonomics and Human Computer Interaction.- System Architecture.- Software Paradigms.- Software Process Models.- Formal Specification.- Business Process Modeling and Workflow Technology.- IT Service Management.- IT Security Management and IT Continuity Management.- Software Asset Management.- Index.

### Fields of interest

Software Engineering; Programming Techniques; Management of Computing and Information Systems; Models and Principles; The Computer Industry; History of Computing

### Target groups

Professional/practitioner

### Type of publication

Monograph

More on [www.springer.com/978-3-642-17739-2](http://www.springer.com/978-3-642-17739-2)

### Hardcover

2014. Approx. 400 p. 150 illus..

ISBN 978-3-642-17739-2

Due: December 2014

M.N.O. Sadiku, Prairie View A&M University, Prairie View, USA;  
S.M. Musa, Prairie View A&M University, Prairie View, USA

## Performance Analysis of Computer Networks

This book covers performance analysis of computer networks, and begins by providing the necessary background in probability theory, random variables, and stochastic processes. Queuing theory and simulation are introduced as the major tools analysts have access to. It presents performance analysis on local, metropolitan, and wide area networks, as well as on wireless networks. It concludes with a brief introduction to self-similarity. Designed for a one-semester course for senior-year undergraduates and graduate engineering students, it may also serve as a fingertip reference for engineers developing communication networks, managers involved in systems planning, and researchers[...]

### Features

This book covers performance analysis of computer networks, and begins by providing the necessary background in probability theory, random variables, and stochastic processes. Queuing theory and simulation are introduced as the major tools analysts have access to. It presents performance analysis on local, metropolitan, and wide area networks, as well as on wireless networks. It concludes with a brief [...]

### Contents

Introduction.- Probability and Random Variables.- Stochastic Processes.- Queueing Models.- Simulation.- Local Area Networks.- Metropolitan Area Networks.- Wide Area Networks.- Wireless Networks.- Self-Similarity of Network Traffic.

### Fields of interest

Computer Communication Networks

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-319-01645-0](http://www.springer.com/978-3-319-01645-0)

### Hardcover

2013. XIII, 279 p. 127 illus., 31 illus. in color.

ISBN 978-3-319-01645-0

**Due: October 31, 2013**

J. Hunt, University of the West of England, Bristol, United Kingdom

## Scala Design Patterns

### Patterns for Practical Reuse and Design

Scala is a new and exciting programming language that is a hybrid between object oriented languages such as Java and functional languages such as Haskell. As such it has its own programming idioms and development styles. Scala Design Patterns looks at how code reuse can be successfully achieved in Scala. A major aspect of this is the reinterpretation of the original Gang of Four design patterns in terms of Scala and its language structures (that is the use of Traits, Classes, Objects and Functions). It includes an exploration of functional design patterns and considers how these can be interpreted in Scala's uniquely hybrid style. A key aspect of the book is the many code examples that [...]

### Features

Scala is a new and exciting programming language that is a hybrid between object oriented languages such as Java and functional languages such as Haskell. As such it has its own programming idioms and development styles. Scala Design Patterns looks at how code reuse can be successfully achieved in Scala. A major aspect of this is the reinterpretation of the original Gang of Four design patterns [...]

### Contents

Author's Note.- Part I – Introduction.- Introduction.- Design Patterns.- UML and Scala.- Part II – Fundamental Patterns.- Immutability.- Singleton.- Marker Trait.- Delegation.- Part III – Code Reuse Patterns.- Lazy Parameters.- Partially Applied Functions.- Trait Based Template Operation.- Stackable Traits.- Currying and Code Reuse.- Cake Pattern.- Structural Injection.- Implicit Injection Pattern.- Part IV – Gang of Four Patterns.- Gang of Four Design Patterns.- Gang of Four Patterns Catalogs.- Factory Operation.- Abstract Factory Pattern.- Builder.- Adapter Pattern.- Decorator.- [...]

### Fields of interest

Software Engineering / Programming and Operating Systems; Programming Techniques

### Target groups

Professional/practitioner

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02191-1](http://www.springer.com/978-3-319-02191-1)

### Hardcover

2013. X, 399 p. 90 illus., 49 illus. in color.

ISBN 978-3-319-02191-1

**Due: November 30, 2013**

M. Gregory, RMIT University, Melbourne, Australia; D. Glance, University of Western Australia, Crawley, Australia

## Security and the Networked Society

This book examines technological and social events during 2011 and 2012, a period that saw the rise of the hacktivist, the move to mobile platforms, and the ubiquity of social networks. It covers key technological issues such as hacking, cyber-crime, cyber-security and cyber-warfare, the internet, smart phones, electronic security, and information privacy. This book traces the rise into prominence of these issues while also exploring the resulting cultural reaction. The authors' analysis forms the basis of a discussion on future technological directions and their potential impact on society. The book includes forewords by Professor Margaret Gardner AO, Vice-Chancellor and President of [...]

### Features

This book examines technological and social events during 2011 and 2012, a period that saw the rise of the hacktivist, the move to mobile platforms, and the ubiquity of social networks. It covers key technological issues such as hacking, cyber-crime, cyber-security and cyber-warfare, the internet, smart phones, electronic security, and information privacy. This book traces the rise into prominence of these [...]

### Contents

Introduction.- Hacking.- Cyber Crime, Cyber Security and Cyber Warfare.- Internet.- Smart Phones.- Applications.- Predictions.

### Fields of interest

Information Systems and Communication Service; Systems and Data Security; Computer Communication Networks; Data Encryption; Information Systems Applications (incl. Internet)

### Target groups

Professional/practitioner

### Type of publication

Professional book

More on [www.springer.com/978-3-319-02389-2](http://www.springer.com/978-3-319-02389-2)

### Hardcover

2013. X, 296 p.

ISBN 978-3-319-02389-2

**Due: November 30, 2013**

J. Soukup, Code Farms Inc., Richmond, Canada; P. Macháček

## Serialization and Persistent Objects

Turning Data Structures into Efficient Databases

Recently, the pressure for fast processing and efficient storage of large data with complex relations increased beyond the capability of traditional databases. Typical examples include iPhone applications, computer aided design – both electrical and mechanical, biochemistry applications, and incremental compilers. Serialization, which is sometimes used in such situations is notoriously tedious and error prone. In this book, Jiri Soukup and Petr Macháček show in detail how to write programs which store their internal data automatically and transparently to disk. Together with special data structure libraries which treat relations among objects as first-class entities, and with a UML[...]

### Features

Recently, the pressure for fast processing and efficient storage of large data with complex relations increased beyond the capability of traditional databases. Typical examples include iPhone applications, computer aided design – both electrical and mechanical, biochemistry applications, and incremental compilers. Serialization, which is sometimes used in such situations is notoriously tedious and error [...]

### Contents

Introduction.- Fundamentals of persistence.- Data structures, libraries, and UML.- Advanced features, schema migration.- Languages, their features and limitations.- Automatic persistence for Objective-C.- Benchmark.- Proposal to add a keyword to all OO languages.- The future.

### Fields of interest

Data Storage Representation; Database Management; Operating Systems

### Target groups

Professional/practitioner

### Type of publication

Professional book

More on [www.springer.com/978-3-642-39322-8](http://www.springer.com/978-3-642-39322-8)

### Hardcover

2013. X, 280 p. 127 illus., 91 illus. in color.  
ISBN 978-3-642-39322-8

**Due: November 30, 2013**

S. Bhattacharyya, RCC Inst. of Information Technology, Kolkata, India; U. Maulik, Jadavpur University, Kolkata, India

## Soft Computing for Image and Multimedia Data Processing

Proper analysis of image and multimedia data requires efficient extraction and segmentation techniques. Among the many computational intelligence approaches, the soft computing paradigm is best equipped with several tools and techniques that incorporate intelligent concepts and principles. This book is dedicated to object extraction, image segmentation, and edge detection using soft computing techniques with extensive real-life application to image and multimedia data. The authors start with a comprehensive tutorial on the basics of brain structure and learning, and then the key soft computing techniques, including evolutionary computation, neural networks, fuzzy sets and fuzzy[...]

### Features

Proper analysis of image and multimedia data requires efficient extraction and segmentation techniques. Among the many computational intelligence approaches, the soft computing paradigm is best equipped with several tools and techniques that incorporate intelligent concepts and principles. This book is dedicated to object extraction, image segmentation, and edge detection using soft computing techniques [...]

### Contents

Chap. 1 Introduction.- Chap. 2 Transformation-Invariant Image Recognition Using Multilayer Perceptron.- Chap. 3 Energy Efficient Intelligent Lighting Control Using a Multilayer Perceptron.- Chap. 4 Target Tracking Using Fuzzy Hostility Induced Segmentation of Optical Flow Field.- Chap. 5 Binary Object Extraction by Bidirectional Self-organizing Neural Network Architecture.- Chap. 6 Multilevel Object Extraction by BDSONN Architecture.- Chap. 7 Color Object Extraction by Parallel BDSONN Architecture.- Chap. 8 Gray-Scale Image Edge Detection Using Rough Sets.- References.- Index.

### Fields of interest

Artificial Intelligence (incl. Robotics); Image Processing and Computer Vision; Computational Intelligence; Data Mining and Knowledge Discovery

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-40254-8](http://www.springer.com/978-3-642-40254-8)

### Hardcover

2013. XV, 267 p. 171 illus., 53 illus. in color.  
ISBN 978-3-642-40254-8

**Due: October 31, 2013**

R. Böhme (Ed.)

## The Economics of Information Security and Privacy

In the late 1990s, researchers began to grasp that the roots of many information security failures can be better explained with the language of economics than by pointing to instances of technical flaws. This led to a thriving new interdisciplinary research field combining economic and engineering insights, measurement approaches and methodologies to ask fundamental questions concerning the viability of a free and open information society. While economics and information security comprise the nucleus of an academic movement that quickly drew the attention of thinktanks, industry, and governments, the field has expanded to surrounding areas such as management of information security,[...]

### Features

In the late 1990s, researchers began to grasp that the roots of many information security failures can be better explained with the language of economics than by pointing to instances of technical flaws. This led to a thriving new interdisciplinary research field combining economic and engineering insights, measurement approaches and methodologies to ask fundamental questions concerning the viability of a [...]

### Contents

Part I - Management of Information Security.- A Closer Look at Information Security Costs.- To Invest or Not to Invest? Assessing the Economic Viability of a Policy and Security Configuration Management Tool.- Ad-Blocking Games: Monetizing Online Content Under the Threat of Ad Avoidance.- Software Security Economics: Theory, in Practice.- Part II - Economics of Information Security.- An Empirical Study on Information Security Behaviors and Awareness.- Sectoral and Regional Interdependency of Japanese Firms Under the Influence of Information Security Risks.- Can We Afford Integrity by[...]

### Fields of interest

Data Structures, Cryptology and Information Theory; Economics; Systems and Data Security

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39497-3](http://www.springer.com/978-3-642-39497-3)

### Hardcover

2013. XV, 300 p. 57 illus., 15 illus. in color.  
ISBN 978-3-642-39497-3

**Due: November 30, 2013**

E. Agmon, Bar-Ilan University, Ramat-Gan, Israel

## The Languages of Western Tonality

Tonal music, from a historical perspective, is far from homogenous; yet an enduring feature is a background "diatonic" system of exactly seven notes orderable cyclically by fifth. What is the source of the durability of the diatonic system, the octave of which is representable in terms of two particular integers, namely 12 and 7? And how is this durability consistent with the equally remarkable variety of musical styles — or languages — that the history of Western tonal music has taught us exist? This book is an attempt to answer these questions. Using mathematical tools to describe and explain the Western musical system as a highly sophisticated communication system, this[...]

### Features

Tonal music, from a historical perspective, is far from homogenous; yet an enduring feature is a background "diatonic" system of exactly seven notes orderable cyclically by fifth. What is the source of the durability of the diatonic system, the octave of which is representable in terms of two particular integers, namely 12 and 7? And how is this durability consistent with the equally remarkable variety of [...]

### Contents

Chap. 1 Prototonal Theory: Tapping into Ninth-Century Insights.- Part I Prototonicity.- Chap. 2 Preliminaries.- Chap. 3 Communicating Pitches and Transmitting Notes.- Chap. 4 The Conventional Nomenclatures for Notes and Intervals.- Chap. 5 Communicating the Primary Intervals.- Chap. 6 Receiving Notes.- Chap. 7 Harmonic Systems.- Chap. 8 Prototonicity.- Part II The Languages of Western Tonality.- Chap. 9 Tonal Preliminaries.- Chap. 10 Modal Communication.- Chap. 11 Topics in Dyadic and Triadic Theory.- Chap. 12 Modes, Semeikeys, and Keys: A Reality Check.- Chap. 13 A[...]

### Fields of interest

Computer Appl. in Arts and Humanities; Music

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39586-4](http://www.springer.com/978-3-642-39586-4)

### Hardcover

2013. XXVII, 280 p. 75 illus. (Computational Music Science)

ISBN 978-3-642-39586-4

Due: October 31, 2013

G. Ausiello, Università di Roma "La Sapienza", Rome, Italy; R. Petreschi, Università di Roma "La Sapienza", Rome, Italy (Eds.)

## The Power of Algorithms

### Inspiration and Examples in Everyday Life

To examine, analyze, and manipulate a problem to the point of designing an algorithm for solving it is an exercise of fundamental value in many fields. With so many everyday activities governed by algorithmic principles, the power, precision, reliability and speed of execution demanded by users have transformed the design and construction of algorithms from a creative, artisanal activity into a full-fledged science in its own right. This book is aimed at all those who exploit the results of this new science, as designers and as consumers. The first chapter is an overview of the related history, demonstrating the long development of ideas such as recursion and more recent[...]

### Features

To examine, analyze, and manipulate a problem to the point of designing an algorithm for solving it is an exercise of fundamental value in many fields. With so many everyday activities governed by algorithmic principles, the power, precision, reliability and speed of execution demanded by users have transformed the design and construction of algorithms from a creative, artisanal activity into a full-fledged [...]

### Contents

Part I Finding One's Way in a World of Algorithms.- Chap. 1 Algorithms: An Historical Perspective.- Chap. 2 How to Design an Algorithm.- Chap. 3 The One Million Dollars Problem.- Part II The Difficult Simplicity of Daily Life.- Chap. 4 The Quest for the Shortest Route.- Chap. 5 Web Search.- Chap. 6 Algorithms for Secure Communication.- Chap. 7 Algorithmics for the Life Sciences.- Chap. 8 The Shortest Walk to Watch TV.- Chap. 9 Algorithms for Auctions and Games.- Chap. 10 Randomness and Complexity.

### Fields of interest

Computers and Education; Algorithm Analysis and Problem Complexity; History of Computing; History of Science

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-3-642-39651-9](http://www.springer.com/978-3-642-39651-9)

### Hardcover

2013. XIV, 255 p. 86 illus., 72 illus. in color.

ISBN 978-3-642-39651-9

Due: October 31, 2013

A. Hameurlain, Paul Sabatier University, Toulouse, France; J. Küng, R. Wagner, S.W. Liddle, Brigham Young University, Provo, USA; K.-D. Schewe, Software Competence Center, Hagenberg, Austria; X. Zhou, University of Queensland, Brisbane, Australia (Eds.)

## Transactions on Large-Scale Data- and Knowledge-Centered Systems X

### Special Issue on Database- and Expert-Systems Applications

The LNCS journal Transactions on Large-Scale Data- and Knowledge-Centered Systems focuses on data management, knowledge discovery, and knowledge processing, which are core and hot topics in computer science. Since the 1990s, the Internet has become the main driving force behind application development in all domains. An increase in the demand for resource sharing across different sites connected through networks has led to an evolution of data- and knowledge-management systems from centralized systems to decentralized systems enabling large-scale distributed applications providing high scalability. Current decentralized systems still focus on data and knowledge as their main[...]

### Features

The LNCS journal Transactions on Large-Scale Data- and Knowledge-Centered Systems focuses on data management, knowledge discovery, and knowledge processing, which are core and hot topics in computer science. Since the 1990s, the Internet has become the main driving force behind application development in all domains. An increase in the demand for resource sharing across different sites connected through [...]

### Contents

Stepwise Development of Formal Models for Web Services Compositions: Modelling and Property Verification.- Computing Skyline Incrementally in Response to Online Preference Modification.- The Finite Implication Problem for Expressive XML Keys: Foundations, Applications, and Performance Evaluation.- ALACRITY: Analytics-Driven Lossless Data Compression for Rapid In-Situ Indexing, Storing, and Querying.- A Declarative Approach to View Selection Modeling.- A Framework for Modeling, Computing and Presenting Time-Aware Recommendations.- Incremental Mining of Top-k Maximal Influential Paths in[...]

### Fields of interest

Data Mining and Knowledge Discovery; Database Management; Computer Communication Networks; Computer Appl. in Administrative Data Processing

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-41220-2](http://www.springer.com/978-3-642-41220-2)

### Softcover

2013. XII, 201 p. 91 illus. (Transactions on Large-Scale Data- and Knowledge-Centered Systems, Vol. 8220)

ISBN 978-3-642-41220-2

usually dispatched within 3 to 5 business days  
September 23, 2013

B. Berstel-Da Silva, University of Freiburg, Freiburg, Germany

## Verification of Business Rules Programs

Rules represent a simplified means of programming, congruent with our understanding of human brain constructs. With the advent of business rules management systems, it has been possible to introduce rule-based programming to nonprogrammers, allowing them to map expert intent into code in applications such as fraud detection, financial transactions, healthcare, retail, and marketing. However, a remaining concern is the quality, safety, and reliability of the resulting programs. This book is on business rules programs, that is, rule programs as handled in business rules management systems. Its conceptual contribution is to present the foundation for treating business rules as a topic[...]

### Features

Rules represent a simplified means of programming, congruent with our understanding of human brain constructs. With the advent of business rules management systems, it has been possible to introduce rule-based programming to nonprogrammers, allowing them to map expert intent into code in applications such as fraud detection, financial transactions, healthcare, retail, and marketing. However, a remaining [...]

### Contents

Chap. 1 - Introduction.- Chap. 2 - Related Work.- Chap. 3 - Syntax of Rules and Rule Programs.- Chap. 4 - States and State Assertions.- Chap. 5 - Operational Semantics of Rule Programs.- Chap. 6 - Correctness of Rule Programs.- Chap. 7 - Correctness of Programs: A Comparison.- Chap. 8 - Main Steps in Rule Program Verification.- Chap. 9 - A Verification Method for Rule Programs.- Chap. 10 - Specialized Proof Rules.- Chap. 11 - Conclusion.- Appendix A - Verification in an Industrial Business Rules Management System.- List of Proof Rules.- Index.

### Fields of interest

Logics and Meanings of Programs; Artificial Intelligence (incl. Robotics); Database Management; Programming Techniques

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40037-7](http://www.springer.com/978-3-642-40037-7)

### Hardcover

2013. XIV, 226 p. 18 illus., 2 illus. in color. ISBN 978-3-642-40037-7

**Due: November 30, 2013**

E. Ch'ng, University of Birmingham, Birmingham, United Kingdom; V. Gaffney, University of Birmingham, Birmingham, United Kingdom; H. Chapman, University of Birmingham, Birmingham, United Kingdom (Eds.)

## Visual Heritage in the Digital Age

Heritage is everywhere, and an understanding of our past is increasingly critical to the understanding of our contemporary cultural context and place in global society. Visual Heritage in the Digital Age presents the state-of-the-art in the application of digital technologies to heritage studies, with the chapters collectively demonstrating the ways in which current developments are liberating the study, conservation and management of the past. Digital approaches to heritage have developed significantly over recent decades in terms of both the quantity and range of applications. However, rather than merely improving and enriching the ways in which we understand and engage with the[...]

### Features

Heritage is everywhere, and an understanding of our past is increasingly critical to the understanding of our contemporary cultural context and place in global society. Visual Heritage in the Digital Age presents the state-of-the-art in the application of digital technologies to heritage studies, with the chapters collectively demonstrating the ways in which current developments are liberating [...]

### Contents

Foreword by Ross Perry.- Seeing Things: Heritage Computing and the Arts and Humanities.- Digital Heritage: What Happens when we Digitize Everything?.- Digital Reconstruction of Archaeological Sites and Monuments: Some Experiences in South-Eastern Sicily.- Urban Scrawl: Reconstructing Urban Landscapes Using Documentary Sources.- Crossing Borders: A Multi-Layer GIS Mapping Framework for the Cultural Management of the Mundo Maya Region.- Situating Cultural Technologies Outdoors: Designing for Mobile Interpretation of Rock Art in Rural Britain.- Simulation and Visualisation of Agent[...]

### Fields of interest

User Interfaces and Human Computer Interaction; Archaeology; Cultural Heritage; Simulation and Modeling

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4471-5534-8](http://www.springer.com/978-1-4471-5534-8)

### Hardcover

2013. XVII, 327 p. 151 illus., 106 illus. in color. (Springer Series on Cultural Computing) ISBN 978-1-4471-5534-8

**Due: October 31, 2013**

S. Ceri, Politecnico di Milano, Milan, Italy; A. Bozzon, Politecnico di Milano, Milan, Italy; M. Brambilla, Politecnico di Milano, Milan, Italy; E. Della Valle, Politecnico di Milano, Milan, Italy; P. Fraternali, Politecnico di Milano, Milan, Italy; S. Quarteroni, Politecnico di Milano, Milan, Italy

## Web Information Retrieval

With the proliferation of huge amounts of (heterogeneous) data on the Web, the importance of information retrieval (IR) has grown considerably over the last few years. Big players in the computer industry, such as Google, Microsoft and Yahoo!, are the primary contributors of technology for fast access to Web-based information; and searching capabilities are now integrated into most information systems, ranging from business management software and customer relationship systems to social networks and mobile phone applications. Ceri and his co-authors aim at taking their readers from the foundations of modern information retrieval to the most advanced challenges of Web IR. To this end,[...]

### Features

With the proliferation of huge amounts of (heterogeneous) data on the Web, the importance of information retrieval (IR) has grown considerably over the last few years. Big players in the computer industry, such as Google, Microsoft and Yahoo!, are the primary contributors of technology for fast access to Web-based information; and searching capabilities are now integrated into most information systems, [...]

### Contents

Part I Principles of Information Retrieval.- An Introduction to Information Retrieval.- The Information Retrieval Process.- Information Retrieval Models.- Classification and Clustering.- Natural Language Processing for Search.- Part II Information Retrieval for the Web.- Search Engines.- Link Analysis.- Recommendation and Diversification for the Web.- Advertising in Search.- Part III Advanced Aspects of Web Search.- Publishing Data on the Web.- Meta-Search and Multi-Domain Search.- Semantic Search.- Multimedia Search.- Search Process and Interfaces.- Human Computation and Crowd Search.

### Fields of interest

Information Storage and Retrieval; Artificial Intelligence (incl. Robotics); Probability and Statistics in Computer Science; e-commerce / e-business

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-39313-6](http://www.springer.com/978-3-642-39313-6)

### Hardcover

2013. XIV, 284 p. 113 illus., 3 illus. in color. (Data-Centric Systems and Applications) ISBN 978-3-642-39313-6

**usually dispatched within 3 to 5 business days**

## Economics

A. Singh

### A Critical Impulse to e-Governance in the Asia Pacific

This book presents a comparative study of the vision, ability and dynamism on the part of governments in selected Asian Pacific countries as they engage in the distribution of e-governance. Consequently, it creates a platform for mutual learning and offers a dispassionate evaluation of mega e-projects. It is an interdisciplinary study of information and communication technology within mainstream social science research and attempts to bridge the gap in empirical research between the nature of technology and the manner in which it is governed. The analysis shows that hegemonic and panoptic structures of surveillance and control may derail efforts to establish sustainable e-governance.[...]

#### Features

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Chapter 1: From Governance to e-Governance.- Chapter 2: Epistemology and Theoretical Explorations of e-Governance.- Chapter 3: Developmental Aspirations and Networked Readiness.- Chapter 4: Towards sustainability of e-governance.- Chapter 5: Information Technology and the Role of Government in Australia: Political Ideology and Discourse in the 'Asian Century'.- Chapter 6: Privacy, Control and the Law.

#### Fields of interest

Social Policy; Public Administration; R & D / Technology Policy; Law and Economics; Technology Management

#### Target groups

Professional/practitioner

#### Type of publication

Monograph

More on [www.springer.com/978-81-322-1631-5](http://www.springer.com/978-81-322-1631-5)

#### Hardcover

2014. XV, 184 p. 7 illus. in color.  
ISBN 978-81-322-1631-5

**Due: October 31, 2013**

P. Malaval, Toulouse Business School, Toulouse Cedex 7, France; C. Bénaroya, Toulouse Business School, Toulouse Cedex 7, France; J. Affalo, ATPCO-Airline Tariff Publishing Company, Dulles, USA

### Aerospace Marketing Management

A Handbook for the Entire Value Chain

This book presents an overall picture of both B2B and B2C marketing strategies, concepts and tools, in the aeronautics sector. This is a significant update to an earlier book successfully published in the nineties which was released in Europe, China, and the USA. It addresses the most recent trends such as Social Marketing and the internet, Customer Orientation, Project Marketing and Concurrent Engineering, Coopetition, and Extended Enterprise. Aerospace Marketing Management is the first marketing handbook richly illustrated with executive and expert inputs as well as examples from parts suppliers, aircraft builders, airlines, helicopter manufacturers, aeronautics service providers.[...]

#### Features

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#### Contents

1. Marketing in the aeronautics industry.- 2. The Individual and Organizational Purchase.- 3. Business Marketing Intelligence.- 4. Market Segmentation and Positioning.- 5. Marketing and Sales Action Plan.- 6. Innovation and Product Management.- 7. Marketing of Services.- 8. Pricing Policy.- 9. Selecting Distribution Channels and Sales Team Management.- 10. Project Marketing.- 11. Communication Policy.- 12. Selecting Media.- 13. Brand Management.- 14. Building Loyalty: Maintenance, Customer Training and Offsets.- 15. Alliance Strategies.

#### Fields of interest

Marketing; Aerospace Technology and Astronautics; Production / Logistics; Transportation; Project Management

#### Target groups

Professional/practitioner

#### Type of publication

Professional book

More on [www.springer.com/978-3-319-01353-4](http://www.springer.com/978-3-319-01353-4)

#### Hardcover

2014. XV, 587 p. 375 illus. (Management for Professionals)  
ISBN 978-3-319-01353-4

**Due: October 31, 2013**

R. Tiwari, C. Herstatt, Hamburg University of Technology, Hamburg, Germany

### Aiming Big with Small Cars

Emergence of a Lead Market in India

This book focuses on the small car segment of India's automotive industry to explain the emergence of lead markets. The authors contend that the current understanding of lead markets does not sufficiently explain the business practices that are born out of the intensified globalization of innovation. Lead markets are considered crucial for the global diffusion of new products and this book investigates whether sustainable lead markets can also emerge in developing economies, and if so, under which conditions. The authors question the conventional wisdom and propose updates and extensions to the lead market theory to better reflect the changing ground realities on ground.

#### Features

This book focuses on the small car segment of India's automotive industry to explain the emergence of lead markets. The authors contend that the current understanding of lead markets does not sufficiently explain the business practices that are born out of the intensified globalization of innovation. Lead markets are considered crucial for the global diffusion of new products and this book investigates whether [...]

#### Contents

1. Setting the Scene: The Changing Innovation Landscape.- 2. Developing Countries and Innovation: Innovation Opportunities Spread Globally.- 3. Exploring Opportunities for Global Innovation: Contribution of the Lead Market Strategy.- 4. Growing Demand for Affordable Solutions: India as an Emerging Hub for Frugal Designs.- 5. Need for a Rethink: Challenging the Conventional Wisdom on Innovation Strategies.- 6. Investigating India's Small Car Industry: Emergence of a Lead Market for Frugal Designs.- 7. Profile of India's Automobile Industry.- 8. Role of Small Cars in India's Passenger Car [...]

#### Fields of interest

Technology Management; Emerging Markets/Globalization; R & D / Technology Policy; Business Strategy/Leadership; Automotive Engineering

#### Target groups

Research

#### Type of publication

Monograph

More on [www.springer.com/978-3-319-02065-5](http://www.springer.com/978-3-319-02065-5)

#### Hardcover

2014. XXVII, 229 p. 78 illus. (India Studies in Business and Economics)  
ISBN 978-3-319-02065-5

**Due: November 30, 2013**

M.K. Pyles, College of Charleston, Charleston, USA

## Applied Corporate Finance

Questions, Problems and Making Decisions in the Real World

Applied Corporate Finance fills a gap in the existing resources available to students and professionals needing an academically rigorous, yet practically orientated, source of knowledge about corporate finance. Written by an expert in investment analysis, this textbook leads readers to truly understand the principles behind corporate finance in a real world context from both a firm and investor perspective. The focus of this text is on traditional theory applied to a holistic business case study, offering readers both a quantitative and qualitative perspective on such topics as capital budgeting, time value of money, corporate risk, and capital structure. Each section in the book[...]

### Features

Applied Corporate Finance fills a gap in the existing resources available to students and professionals needing an academically rigorous, yet practically orientated, source of knowledge about corporate finance. Written by an expert in investment analysis, this textbook leads readers to truly understand the principles behind corporate finance in a real world context from both a firm and investor [...]

### Contents

In the Beginning.- Financial Statement Analysis.- Cash Flow.- The Right Frame of Time.- Capital Structure: Borrow it!.- Capital Structure: Sell it off!.- The Rocky Marriage of Risk and Return.- This is so WACC!!.- Capital Budgeting Decisions.

### Fields of interest

Finance / Banking; Financial Economics; Business Strategy/Leadership

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-9172-9](http://www.springer.com/978-1-4614-9172-9)

### Hardcover

2014. XV, 429 p. 14 illus., 10 illus. in color. (Springer Texts in Business and Economics)  
ISBN 978-1-4614-9172-9

**Due: November 30, 2013**

N.T. Thomopoulos, Illinois Institute of Technology, Chicago, USA

## Assembly Line Planning and Control

Assembly Line Planning and Control describes the basic fundamentals of assembly lines for single model lines, mixed model make-to-stock lines, mixed model make-to-order lines and for one-station assembly. The book shows how to select the quantity of units to schedule for a shift duration, compute the number of operators needed on a line, set the conveyor speed, coordinate the main line with sub-assembly lines, assign the work elements to the operators on the line, sequence the models down the line, sequence the jobs down the line, calculate the part and component requirements for a line and for each station, determine the replenish needs of the parts and components from the [...]

### Features

Assembly Line Planning and Control describes the basic fundamentals of assembly lines for single model lines, mixed model make-to-stock lines, mixed model make-to-order lines and for one-station assembly. The book shows how to select the quantity of units to schedule for a shift duration, compute the number of operators needed on a line, set the conveyor speed, coordinate the main line with sub-assembly [...]

### Contents

Introduction.- Assembly Systems.- Some Fundamentals.- Preliminary Planning.- Inventory Replenishments.- Single Model Assembly.- Mixed Model Make-to-Stock Assembly.- Mixed Model Make-to-Order Assembly.- Postponement Assembly.- One Station Assembly.- Similarity Index.- Learning Curves.

### Fields of interest

Operation Research / Decision Theory; Production / Logistics; Operating Procedures, Materials Treatment

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01398-5](http://www.springer.com/978-3-319-01398-5)

### Hardcover

2014. XVI, 145 p. 10 illus. in color.  
ISBN 978-3-319-01398-5

**usually dispatched within 3 to 5 business days**

J. Wernz

## Bank Management and Control

Strategy, Capital and Risk Management

Strategic planning, including the required quantitative methods, is an essential part of bank management and control. In this book capital, risk and yield are treated comprehensively and seamlessly. And a thorough introduction to the advanced methods of risk management for all sectors of banking is discussed. In addition, directly applicable concepts and data such as macroeconomic scenarios for strategic planning and stress testing as well as detailed scenarios for operational risk and advanced concepts for credit risk are presented in straightforward language. The book analyzes the effects of macroeconomic and regulatory developments such as the set of Basel III rules on planning.[...]

### Features

Strategic planning, including the required quantitative methods, is an essential part of bank management and control. In this book capital, risk and yield are treated comprehensively and seamlessly. And a thorough introduction to the advanced methods of risk management for all sectors of banking is discussed. In addition, directly applicable concepts and data such as macroeconomic scenarios for strategic [...]

### Contents

1 Outline.- 2 Bank Management and Steering.- 3 Banks in their Regulatory and Economic Environment.- 4 Risk Modeling and Capital - Credit Risk (Loans).- 5 Risk Modeling and Capital - Counterparty Credit Risk (EPE).- 6 Risk Modeling and Capital - Credit Risk (Securitizations).- 7 Risk Modeling and Capital - Market Risk.- 8 Risk Modeling and Capital - Operational Risk.- 9 Risk Modeling - Asset Liability Management (ALM).- 10 Appendix: A- IRB Formulas for the Derivation of Risk-Weighted Assets.- 11 Appendix: Credit Portfolio Modeling.- 12 Appendix: Country Risk/Issuer Risk.- 13 Appendix:[...]

### Fields of interest

Finance / Banking; Quantitative Finance; Statistics for Business, Economics, Mathematical Finance, Insurance; Financial Economics; Macroeconomics / Monetary Economics

### Target groups

Professional/practitioner

### Type of publication

Professional book

More on [www.springer.com/978-3-642-40373-6](http://www.springer.com/978-3-642-40373-6)

### Hardcover

2014. XIII, 120 p. 35 illus. (Management for Professionals)  
ISBN 978-3-642-40373-6

**Due: October 31, 2013**

K. Takemura

## Behavioral Decision Theory

Psychological and Mathematical Descriptions of Human Choice Behavior

This book provides an overview of behavioral decision theory and related research findings. In brief, behavioral decision theory is a general term for descriptive theories to explain the psychological knowledge related to decision-making behavior. It is called a theory, but actually it is a combination of various psychological theories, for which no axiomatic systems, such as the utility theory widely used in economics, have been established; it is often limited to qualitative knowledge. However, as suggested in the studies of H. A. Simon, who won the Nobel Prize for Economics in 1978, and D. Kahneman, who won the prize in 2002, the psychological methodology and knowledge of [...]

### Features

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### Contents

Preface I. Behavioral Decision Theory and the Idea of It. Chapter 1 Decision-making Phenomenon and Behavioral Decision Theory: 1. What is decision-making? 2. Structure of preference relations and decision-making problems. 3. Decision-making and uncertainty. 4. Approaches to decision-making research and behavioral decision theory Column II. Preference Reversal Phenomenon and Description of the Phenomenon. Chapter 2 Ordinal Utility and Preference Reversal Phenomenon: 1. What is utility? 2. Does a weak order empirically hold? 3. Preference reversal phenomenon. Chapter 3 Causes of the [...]

### Fields of interest

Operation Research / Decision Theory; Game Theory / Mathematical Methods; Sociological Theory

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-4-431-54579-8](http://www.springer.com/978-4-431-54579-8)

### Hardcover

2013. Approx. 210 p. 34 illus.  
ISBN 978-4-431-54579-8

**Due: November 17, 2013**

N. Abebe, M.T. Bolton, M. Pavelka, M. Pierstorff

## Bidding for Development

How the Olympic Bid Process Can Accelerate Transportation Development

In 2012, over four billion people tuned in to watch the London Summer Olympics. As the single largest mega-event in the world, the Olympics has the power to captivate the global imagination. Long before athletes vie for a gold medal, however, competition between cities eager to host the Games kicks off with a rigorous bid process. The lengthy and expensive endeavor to host the Olympics is as high-stakes as any sporting event. Rather than encouraging cities to refrain from bidding, Bidding for Development takes a policy approach that challenges stakeholders to bid responsibly and strategically in pursuit of concrete outcomes. Every bid city has the potential to accelerate long-term [...]

### Features

In 2012, over four billion people tuned in to watch the London Summer Olympics. As the single largest mega-event in the world, the Olympics has the power to captivate the global imagination. Long before athletes vie for a gold medal, however, competition between cities eager to host the Games kicks off with a rigorous bid process. The lengthy and expensive endeavor to host the Olympics is as high-stakes as [...]

### Contents

1. Introduction.- 2. Urban Development and the Olympics.- 3. The Olympic Legacy.- 4. Bid Framework.- 5. Case Studies.- 6. Recommendations and for the Road Ahead.

### Fields of interest

Economics; Public Administration; Transportation

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8911-5](http://www.springer.com/978-1-4614-8911-5)

### Hardcover

2014. XVI, 92 p. 12 illus. in color. (Sports Economics, Management and Policy, Vol. 9)  
ISBN 978-1-4614-8911-5

**Due: November 30, 2013**

N.M. Nasrullah, University of Dhaka, Eastwood, Australia; M.M. Rahim, Queensland University of Technology, Eastlakes, Australia

## CSR in Private Enterprises in Developing Countries

Evidences from the Ready-Made Garments Industry in Bangladesh

This book examines the growing trend of recognition and practices of CSR in private enterprises in developing countries. It identifies the challenges and deficiencies in these practices and proposes means for improvement. Based on a sound theoretical foundation, this book focusses on the case of Bangladesh and the ready-made garment industry to exemplify the described developments. After a brief introduction the book outlines the standards of Corporate Social Responsibility. It compares the trends in CSR practices both in developed and developing countries and then embarks on CSR practices in the private sector in Bangladesh to finally present a detailed analysis of CSR and its [...]

### Features

This book examines the growing trend of recognition and practices of CSR in private enterprises in developing countries. It identifies the challenges and deficiencies in these practices and proposes means for improvement. Based on a sound theoretical foundation, this book focusses on the case of Bangladesh and the ready-made garment industry to exemplify the described developments. After a brief [...]

### Contents

Introduction.- Understanding of CSR and its standards.- Trends in CSR practices.- CSR practices in the private enterprises of Bangladesh.- CSR and its practices in the ready-made garment (RMG) sector.- CSR in Private Enterprises.- Comparative Experiences of Bangladesh and Vietnam.- Conclusion.

### Fields of interest

Non-Profit Enterprises/Corporate Social Responsibility; Development Economics; Ethics; International Economics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02349-6](http://www.springer.com/978-3-319-02349-6)

### Hardcover

2014. XII, 220 p. (CSR, Sustainability, Ethics & Governance)  
ISBN 978-3-319-02349-6

**Due: October 31, 2013**

null CMR of Xiamen University, Xiamen University, Xiamen, China (P.R.)

## China's Macroeconomic Outlook

Quarterly Forecast and Analysis Report, February 2013

The research team makes the following forecasts: First, in 2013 China's growth will remain stable and reach 8.23 percent, an increase of 0.43 percentage points compared with the previous year; even though there is inflation pressure resulting from global monetary easing, severe inflation in China is unlikely to happen, and the consumer price index (CPI) will remain at 3.11 percent. Second, the growth of imports and exports will rebound, but the trade surplus will decrease further. Finally, the share of investment in GDP will continue to be high in the short term as urbanization promotes the growth of fixed assets investment, though higher per capita incomes will result in high and [...]

### Features

The research team makes the following forecasts: First, in 2013 China's growth will remain stable and reach 8.23 percent, an increase of 0.43 percentage points compared with the previous year; even though there is inflation pressure resulting from global monetary easing, severe inflation in China is unlikely to happen, and the consumer price index (CPI) will remain at 3.11 percent. Second, the growth of [...]

### Contents

Review of China's Macroeconomic Performance in 2012.- Forecast of China's Macroeconomic Outlook for 2013-2014.- Policy Simulations.- Policy Implications and Suggestions.- Comments and Discussions.

### Fields of interest

Macroeconomics / Monetary Economics; Economic Growth; Public Finance & Economics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40043-8](http://www.springer.com/978-3-642-40043-8)

### Hardcover

2014. XII, 41 p. 24 illus. in color. (Current Chinese Economic Report Series)  
ISBN 978-3-642-40043-8

**Due: October 31, 2013**

Y. Li, Peking University, Beijing, China (P.R.)

## Chinese Economy in Disequilibrium

Known internationally as 'Mr. Shareholding' economist, Li Yining has had a transformative impact on China's economic transition, most notably as an early advocate of ownership reform and in his promotion of shareholding theory. By examining the interrelationship between the government, enterprises and the market, Chinese Economy in Disequilibrium presents an in-depth discussion on the issues of resource allocation, industrial structure, institutional innovation and economic fluctuation in the current Chinese economy under the condition of disequilibrium. Credited with developing the theory of economic disequilibrium, Professor Li distinguishes two types of disequilibrium on the basis [...]

### Features

Known internationally as 'Mr. Shareholding' economist, Li Yining has had a transformative impact on China's economic transition, most notably as an early advocate of ownership reform and in his promotion of shareholding theory. By examining the interrelationship between the government, enterprises and the market, Chinese Economy in Disequilibrium presents an in-depth discussion on the issues of resource [...]

### Contents

Preface.- Exploring The Issues In Resource Allocation.- Market Regulation And Resource Allocation.- Government Regulation And Resource Allocation.- The Mechanism Of The Operation Of The Economy.- Rationing Equilibrium Of The Commodity Market.- Easing Supply And Demand Mismatch Under Disequilibrium Economic Conditions.- Industrial Restructuring.- Government Regulation On Agriculture.- Establishing The Order Of The Socialist Commodity Economy.- The Standardization Of Institutional Innovation.

### Fields of interest

Economics; Political Economy; Economic Policy

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39557-4](http://www.springer.com/978-3-642-39557-4)

### Hardcover

2014. XVIII, 203 p. (China Academic Library)  
ISBN 978-3-642-39557-4

**Due: November 30, 2013**

J. Okpara, Bloomsburg University of Pennsylvania, Bloomsburg, USA; S.O. Idowu, London Metropolitan Business School, London, United Kingdom (Eds.)

## Corporate Social Responsibility

Challenges, Opportunities and Strategies for 21st Century Leaders

In today's global business environment it is no longer acceptable that a corporation does well simply by doing good. It is expected. With increasing pressures from stakeholders to improve the bottom line as well as to be good corporate citizens, business leaders face tough decisions. What social issues should we support? What initiatives should we develop that will do the most good for the company as well as the cause? Do we include social messages in our advertising, encourage our employees to volunteer, do we modify our business practices? How do we integrate a new initiative into current strategies? These and other challenges will continue to face future leaders. This book provides [...]

### Features

In today's global business environment it is no longer acceptable that a corporation does well simply by doing good. It is expected. With increasing pressures from stakeholders to improve the bottom line as well as to be good corporate citizens, business leaders face tough decisions. What social issues should we support? What initiatives should we develop that will do the most good for the company as well [...]

### Contents

Part I: Conceptual Framework of CSR.- Part II: Global Challenges and Opportunities.- Part III: Sustainability: Implementing CSR in MNCs/MNEs, SMEs, and Family Business.- Part IV: CSR in Higher Education Institutions around the World.

### Fields of interest

Non-Profit Enterprises/Corporate Social Responsibility; Public Administration; Business Strategy/Leadership

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-3-642-40974-5](http://www.springer.com/978-3-642-40974-5)

### Hardcover

2014. XX, 340 p. 16 illus., 11 illus. in color. (CSR, Sustainability, Ethics & Governance)  
ISBN 978-3-642-40974-5

**Due: November 30, 2013**

T. Negishi

## Developments of International Trade Theory

Developments of International Trade Theory offers the life-long reflections of a distinguished Japanese scholar who pioneered the application of general equilibrium theory to international trade. Written in a style that makes it easily accessible to scholars and students, the book combines standard topics on international trade with a discussion of the evolution of the theory and as well as recent discussions on topics such as immiserizing growth. This book consists of two parts. Part I examines the historical progression of international trade theory, and Part II addresses the modern theory and recent developments of international trade. In this way the book offers a comprehensive[...]

### Features

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### Contents

Historical Progress of International Trade Theory.- Mercantilism.- Specie-flow Mechanism.- Adam Smith and Division of Labour.- Ricardo and Comparative Costs.- J.S. Mill and Reciprocal Demand.- Mill and Infant Industry.- Marx and International Exploitation.- Marshall and Offer Curve.- Modern Theory and Recent Developments of International Trade.- Theory of Production.- Heckscher-Ohlin Theory (1).- Heckscher-Ohlin Theory (2).- Leontief Paradox.- Domestic Distortions.- Export Promotion and Welfare.- Oligopoly.- Immiserizing Growth.- External Economies.- Historical Appendix.- Adam Smith and [...]

### Fields of interest

Economic Theory; Methodology and the History of Economic Thought; International Economics; Microeconomics

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-4-431-54432-6](http://www.springer.com/978-4-431-54432-6)

### Hardcover

2014. XIII, 174 p. 38 illus. (Advances in Japanese Business and Economics, Vol. 2)  
ISBN 978-4-431-54432-6

**Due: October 31, 2013**

M. Nakano, Hitotsubashi University, Kunitachi, Japan; B. Purevdorj, Kunitachi Haimu A103, Kunitachi, Japan

## Does Reliance on Foreign Markets Make a Difference?

This study examines the relationship between multinationality and the performance of Japanese manufacturing companies during the period 1999–2008 by using geographic segment information. Despite the enormous interest in and importance given to multinationality from the academic and business worlds, prior findings about the multinationality–performance relationship are conflicting and inconsistent. The overall results of the present study show that multinationality has a positive impact both on accounting performance and on market-based performance. In additional tests, Japanese electric and electronic equipment companies' reliance on the Asian market was found to have a negative [...]

### Features

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### Contents

1. Introduction.- 2. Theory and Prior Evidence on Multinationality. 2.1 Benefits and Costs of Multinationality. 2.2 Prior Empirical Evidence on Multinationality and Performance.- 3. Hypotheses. 3.1 Multinationality and Profitability. 3.2 Multinationality and Firm Value.- 4. Description of Data and Methodology. 4.1 Description of Data. 4.2 Trends in Overseas Operations of Japanese Multinational Companies. 4.3 Model.- 5. Empirical Results. 5.1 Descriptive Statistics and Correlations. 5.2 Results and Discussion.- 6. Robustness Check and Additional Tests. 6.1 Alternative Measurement Test. 6.2 [...]

### Fields of interest

Accounting / Auditing; Finance / Banking; Marketing; International Economics; Emerging Markets/Globalization

### Target groups

Research

### Type of publication

Brief

More on [www.springer.com/978-4-431-54561-3](http://www.springer.com/978-4-431-54561-3)

### Softcover

2014. IX, 35 p. 2 illus. in color. (SpringerBriefs in Business)  
ISBN 978-4-431-54561-3

**Due: November 30, 2013**

S. Ulli-Beer, Paul Scherrer Institut, Villigen PSI, Switzerland (Ed.)

## Dynamic Governance of Energy Technology Change

Socio-technical transitions towards sustainability

Formulating effective responses to the global challenges of mitigating climate change and securing a sustainable energy future requires a clear understanding of the interdependent causalities between institutions, local decision making, strategic alliances and eco-innovations, as well as policies. It has been acknowledged that the linear “Manhattan project” model is not an adequate governance model for mastering the dynamic complexity of socio-technical transitions; therefore this book aims at advancing research on systematic transition management models. It offers qualitative and quantitative analyses of socio-technical transitions in road transportation and housing, bringing [...]

### Features

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### Contents

Preface.- 1 Introduction.- Part I: Theory and Methods.- Part II: Fields of Analysis: Clean Personal Road Transportation and Energy- Efficient Housing.- Part III: Research and Policy Implications: Mastering the Challenges of Socio-Technical Transitions in Theory and Practice.

### Fields of interest

R & D / Technology Policy; Energy Policy, Economics and Management; Sustainable Development; Methodology of the Social Sciences

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-39752-3](http://www.springer.com/978-3-642-39752-3)

### Hardcover

2014. X, 250 p. 60 illus., 12 illus. in color. (Sustainability and Innovation)  
ISBN 978-3-642-39752-3

**Due: November 30, 2013**

T.-Y. Kim, College of Engineering, City, Korea(Rep.); A. Heshmati, Sogang University, Seoul, Korea(Rep.)

## Economic Growth

The New Perspectives for Theory and Policy

This book shows that the existing theories on economic growth have clear limitations in terms of how much they can effectively contribute to actual economic growth. Therefore, this book presents a more effective theory on economic growth for countries and leaders looking to promote economic growth. It is essentially centered around the theory of economic growth and theory of national development, written for agricultural developing countries pursuing industrialization and late-starting industrialized countries pursuing their own development. Nevertheless, it also makes a significant contribution to the very development of human civilization through the growth of developing countries.[...]

### Features

This book shows that the existing theories on economic growth have clear limitations in terms of how much they can effectively contribute to actual economic growth. Therefore, this book presents a more effective theory on economic growth for countries and leaders looking to promote economic growth. It is essentially centered around the theory of economic growth and theory of national development, written for [...]

### Contents

Preface.- Introduction to and Summary of Economic Growth: Perspectives on New Theory and Policy.- Decelerating Agricultural Society: Theoretical and Historical Perspectives.- Accelerating Economic Growth in Industrial Societies: The Process of Expansive Reproduction.- Determinants of Economic Divergence among Accelerating Societies.- The Faster-Accelerating Digital Economy.- The Faster Accelerating Growth of the Knowledge-Based Society.- The Catch-Up Illusion: Why Developing Nations that Experience Rapid Economic Growth Can Never Catch Up with Advanced Countries.- War, Peace and [...]

### Fields of interest

Economic Growth; Social Sciences (general); Economic Policy

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-40825-0](http://www.springer.com/978-3-642-40825-0)

### Hardcover

2014. XII, 353 p. 82 illus., 33 illus. in color.  
ISBN 978-3-642-40825-0

**Due: October 31, 2013**

T. Negishi

## Elements of Neo-Walrasian Economics

A Survey

This book aims to explain to the readers the basic idea of the general equilibrium theory, which forms the core of the current mainstream economics called neoclassical school. To understand this theory is absolutely necessary, either to study further or to criticize the contemporary economic theories. The author not only explains traditional theories, but also makes clear the many problems which are still unsolved. As a text book or reference book for those students who are studying microeconomics for the first time, the author recommends the use of Chapter 1, Chapter 2 (except section 9), Chapter 3 (from section 1 to section 3, section 6, section 11), Chapter 4 (from section 1 to [...])

### Features

This book aims to explain to the readers the basic idea of the general equilibrium theory, which forms the core of the current mainstream economics called neoclassical school. To understand this theory is absolutely necessary, either to study further or to criticize the contemporary economic theories. The author not only explains traditional theories, but also makes clear the many problems which are still [...]

### Contents

Introduction.- Firms and Production.- Households and Consumption.- Market Equilibrium (1).- Market Equilibrium (2).- Perfect and Imperfect Competition.- Optimal Allocation of Resources.- Market Failures.- Optimal Income Distribution.- Microeconomic Foundations of Macroeconomics.

### Fields of interest

Economic Theory; Microeconomics; Methodology and the History of Economic Thought; Economics

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-4-431-54534-7](http://www.springer.com/978-4-431-54534-7)

### Hardcover

2014. XI, 192 p. 61 illus. (Advances in Japanese Business and Economics, Vol. 5)  
ISBN 978-4-431-54534-7

**Due: October 31, 2013**

J. vom Brocke, University of Liechtenstein, Vaduz, Liechtenstein; A. Simons, University of Liechtenstein, Vaduz, Liechtenstein (Eds.)

## Enterprise Content Management in Information Systems Research

Foundations, Methods and Cases

This book collects ECM research from the academic discipline of Information Systems and related fields to support academics and practitioners who are interested in understanding the design, use and impact of ECM systems. It also provides a valuable resource for students and lecturers in the field. "Enterprise content management in Information Systems research – Foundations, methods and cases" consolidates our current knowledge on how today's organizations can manage their digital information assets. The business challenges related to organizational information management include reducing search times, maintaining information quality, and complying with reporting obligations and [...]

### Features

"Enterprise Content Management in Information Systems Research – Foundations, Methods and Cases" collects ECM research from the academic discipline of Information Systems and related fields to support academics and practitioners who are interested in understanding the design, use and impact of ECM systems. It also provides a valuable resource for students and lecturers in the field. The book [...]

### Contents

Part A: Foundation and Trends.- Part B: Methods and Tools.- Part C: Examples and Cases.

### Fields of interest

Business Information Systems; Information Systems Applications (incl. Internet); Information Storage and Retrieval

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-39714-1](http://www.springer.com/978-3-642-39714-1)

### Hardcover

2014. XII, 296 p. 36 illus. (Progress in IS)  
ISBN 978-3-642-39714-1

**Due: September 30, 2013**

K. Rüdiger, M. Peris-Ortiz, A. Blanco González (Eds.)

## Entrepreneurship, Innovation and Economic Crisis

Lessons for Research, Policy and Practice

This book looks at entrepreneurship and innovation as ways out of the economic crisis in Europe and other regions, and examines the main theoretical issues and practices related to this analysis. The volume addresses such questions as: From an institutional perspective, how do economic crisis conditions affect different types of entrepreneurs and entrepreneurship? Is it useful for public policymakers and entrepreneurs to understand the basic characteristics of entrepreneurial activity, relations between the institutional environment and entrepreneurship and among entrepreneurship, innovation and social change? Featuring case studies from several industries and countries, and a variety of [...]

### Features

This book looks at entrepreneurship and innovation as ways out of the economic crisis in Europe and other regions, and examines the main theoretical issues and practices related to this analysis. The volume addresses such questions as: From an institutional perspective, how do economic crisis conditions affect different types of entrepreneurs and entrepreneurship? Is it useful for public policymakers and [...]

### Contents

Chapter 1 The value of discovery of opportunities and innovation for entrepreneurship in a context of crisis.- Chapter 2 Antecedents and consequences of export-entrepreneurial orientation in times of crisis.- Chapter 3 Effects of the 2008 crisis on the importance of innovation for start-ups.- Chapter 4 Is technological innovation and R&D enough?.- Chapter 5 Conditioning factors for entrepreneurship in the context of economic crisis.- Chapter 6 The role of innovation on the entrepreneurial function in an economic crisis context.- Chapter 7 Managing innovation during economic changes and [...]

### Fields of interest

Entrepreneurship; Technology Management; Economic Growth; R & D / Technology Policy; Economic Policy

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02383-0](http://www.springer.com/978-3-319-02383-0)

### Hardcover

2014. XIV, 181 p. 14 illus., 7 illus. in color.  
ISBN 978-3-319-02383-0

**Due: November 30, 2013**

P. Curwen, University of Strathclyde, Glasgow, United Kingdom;  
J. Whalley, University of Strathclyde, Glasgow, United Kingdom

## Fourth Generation Mobile Communication

The Path to Superfast Connectivity

This book deals with the development of so-called fourth generation mobile communications or 4G. It covers all aspects of the technology in a form comprehensible to the general reader, a history of its implementation on a worldwide basis and information on how it will be used to improve business transactions. It is up-to-date, comprehensive, and is based upon information acquired from well over one thousand individual sources. All of the data are set up in a manner that simplifies comparisons between countries and service providers. Based on the extensive analysis of the different contexts and progress of 4G technology, future prospects for high-speed mobile communications are also [...]

### Features

This book deals with the development of so-called fourth generation mobile communications or 4G. It covers all aspects of the technology in a form comprehensible to the general reader, a history of its implementation on a worldwide basis and information on how it will be used to improve business transactions. It is up-to-date, comprehensive, and is based upon information acquired from well over one thousand [...]

### Contents

Chapter 1: Technology.- Chapter 2: LTE Cases.- Chapter 3: The USA.- Chapter 4: India, Russia and the UK.- Chapter 5: Europe.- Chapter 6: Asia-Pacific.- Chapter 7: Africa, Middle East and the Americas.- Chapter 8: Conclusions from Case Studies.- Chapter 9: Making Usage of Superfast Connectivity.

### Fields of interest

Business Information Systems; Technology Management; Communication Studies; Management of Computing and Information Systems

### Target groups

Professional/practitioner

### Type of publication

Professional book

More on [www.springer.com/978-3-319-02209-3](http://www.springer.com/978-3-319-02209-3)

### Hardcover

2014. XII, 243 p. (Management for Professionals)  
ISBN 978-3-319-02209-3

**Due: November 30, 2013**

V. Zheng, Chinese University of Hong Kong, Hong Kong, Hong Kong/P.R.China; P.-s. Wan, Chinese University of Hong Kong, Hong Kong, Hong Kong/P.R.China

## Gambling Dynamism

The Macao Miracle

Four years after the actual implementation of its casino deregulation policy, Macao has surpassed Las Vegas as the world's top gambling destination in terms of annual turnover. Also, various recent surveys have put Macao at the very top of the list in terms of per capita GDP, as its economy grew shortly after the resumption of Chinese sovereignty. How could a tiny city without any natural resources on the southern coast of China have managed to achieve such a miraculous level of development? This book presents an unparalleled study of Macao's economic dynamism and its gambling industry not only by merging historical and current developments, but also by presenting solid subjective and [...]

### Features

Four years after the actual implementation of its casino deregulation policy, Macao has surpassed Las Vegas as the world's top gambling destination in terms of annual turnover. Also, various recent surveys have put Macao at the very top of the list in terms of per capita GDP, as its economy grew shortly after the resumption of Chinese sovereignty. How could a tiny city without any natural resources on the [...]

### Contents

Preface.- Abbreviations and Acronyms.- Gambling and Society: A Theoretical Revisiting of the Issue.- Macao and Globalization: A Gambling Perspective.- The Return to Chinese Sovereignty: A Historical Turning Point.- Gambling Expansion and Economic Growth.- Gambling Expansion and Social Change.- Gambling Expansion and Political Development.- National/Regional Integration and Local Development.- The First Decade and the Road Ahead.- Chronology of Gambling Events in Macao.- Glossary.

### Fields of interest

Economics; Cultural Studies; Regional and Cultural Studies

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40748-2](http://www.springer.com/978-3-642-40748-2)

### Hardcover

2014. XII, 202 p. 22 illus., 2 illus. in color.  
ISBN 978-3-642-40748-2

**Due: October 31, 2013**

M. Callaghan, Lowy Institute for International Policy, Sydney, Australia; C. Ghate, Indian Statistical Institute-Delhi, New Delhi, India; S. Pickford, Chatham House, London, United Kingdom; F.X. Rathinam, Department for International Development, New Delhi, India (Eds.)

## Global Cooperation Among G20 Countries

### Responding to the Crisis and Restoring Growth

At the outbreak of the global financial crisis, 2008, the G20 was widely acknowledged as helping prevent an even more serious decline in the global economy. It helped to calm the panic in financial markets and articulate a set of possible policy options to restore global stability and growth. However, as the dual-track recovery set in, policy options for advanced economies and EMEs diverged. Within this context, this book will explore the scope for cooperation amongst the G20 and the diverging challenges and the intricate interconnectedness of policy options between advanced economies and the EMEs within the G20.

### Features

At the outbreak of the global financial crisis, 2008, the G20 was widely acknowledged as helping prevent an even more serious decline in the global economy. It helped to calm the panic in financial markets and articulate a set of possible policy options to restore global stability and growth. However, as the dual-track recovery set in, policy options for advanced economies and EMEs diverged. Within this [...]

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Chapter 1. Introduction.- Chapter 2. Keynote: The G-20 since 2008: Some reflections on the experience and the road ahead.- Part I: Eurozone Crisis: Short-Run Challenges and Options.- Chapter 3. Overcoming the Euro Area Crisis: Reforms and Results.- Chapter 4. Predicting the Euro: A Practitioner's Perspective.- Chapter 5. Monetary Integration in Europe and the Drawbacks of Centralization.- Chapter 6. Reflections on the Euro Crisis.- Part II: Rebalancing the Global Economy.- Chapter 7. The G20, IMF and Global Imbalances: The Policy Makers Perspective.- Chapter 8. Global Imbalances: Causes[...]

### Fields of interest

Macroeconomics / Monetary Economics; Financial Economics; Emerging Markets/Globalization; Economic Policy; Economic Growth

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-81-322-1658-2](http://www.springer.com/978-81-322-1658-2)

### Hardcover

2014. I, 364 p. 51 illus.

ISBN 978-81-322-1658-2

Due: **December 31, 2013**

L.G. Anthopoulos, Technological Education Institute (TEI), Trikala, Thessaly, Greece; C.G. Reddick, The University of Texas at San Antonio, San Antonio, USA (Eds.)

## Government e-Strategic Planning and Management

### Practices, Patterns and Roadmaps

Various e-strategies have been developed since the late '90s in an attempt to describe the governmental vision for administrative and for societal change, the objectives and priorities with regard to the development of the Information and Communication Technologies (ICT) at national and at supranational levels. Terms such as the European "Information Society", the U.S. "Information Highways" and the Korean and Chinese "Informatization" try to describe social transformation that occurs due to the ICT, and to determine means with which governments will capitalize the ICT to improve social life and to support economic growth. This book focuses on the e-strategic management approaches[...]

### Features

Various e-strategies have been developed since the late '90s in an attempt to describe the governmental vision for administrative and for societal change, the objectives and priorities with regard to the development of the Information and Communication Technologies (ICT) at national and at supranational levels. Terms such as the European "Information Society", the U.S. "Information Highways" and the Korean [...]

### Contents

Part 1: General Issues in Government e-Strategic Management.- Chapter 1 Evaluation Methods for e-Strategic Transformation.- Chapter 2 Evaluating e-Government: A Comprehensive Methodological Framework to Assess Policy Impacts.- Chapter 3 Assessing public participation through different lens: the case of Public Participation Geographic Information Systems.- Chapter 4 Location Information Strategies: Bringing Location into e-Government.- Chapter 5 Transparent Model for State Management.- Chapter 6 A Six-Dimensional Strategic Development Tool for e-Government Effectiveness.- Chapter 7[...]

### Fields of interest

Public Administration; Technology Management; Comparative Politics

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-8461-5](http://www.springer.com/978-1-4614-8461-5)

### Hardcover

2014. XVII, 366 p. 51 illus., 28 illus. in color. (Public Administration and Information Technology, Vol. 3)

ISBN 978-1-4614-8461-5

Due: **October 31, 2013**

G. Dionne, HEC Montreal, Montreal, Canada (Ed.)

## Handbook of Insurance

This new edition of the Handbook of Insurance reviews the last forty years of research developments in insurance and its related fields. A single reference source for professors, researchers, graduate students, regulators, consultants, and practitioners, the book starts with the history and foundations of risk and insurance theory, followed by a review of prevention and precaution, asymmetric information, risk management, insurance pricing, new financial innovations, reinsurance, corporate governance, capital allocation, securitization, systemic risk, insurance regulation, the industrial organization of insurance markets, and other insurance market applications. It ends with health[...]

### Features

What a pleasure it is to discover the second edition of the Handbook of Insurance, twelve years after the first! Many key concepts at the core of risk, uncertainty and insurance economics have been further refined, reassessed, and reanalyzed. New issues have emerged, including systemic risk, longevity risk, long-term care, the corporate governance of insurance companies, capital allocation within insurance [...]

### Contents

Preface.- Introduction.- Part 1: History.- Developments in Risk and Insurance Economics: the Past 40 Years.- Part 2 : Risk and Insurance Theory Without Information Problems.- Higher-Order Risk Attitudes.- Non-Expected Utility and the Robustness of the Classical Insurance Paradigm.- The Economics of Optimal Insurance Design.- The Effects of Changes in Risk on Risk Taking: A Survey.- Risk Measures and Dependence Modeling.- The Theory of Insurance Demand.-Prevention and Precaution.- Part 3 : Asymmetric Information: Theory.- Optimal Insurance Contracts under Moral Hazard.- Adverse Selection[...]

### Fields of interest

Business & Economics (general)

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-0154-4](http://www.springer.com/978-1-4614-0154-4)

### Hardcover

2014. XXIV, 1134 p. 142 illus., 33 illus. in color.

ISBN 978-1-4614-0154-4

Due: **September 30, 2013**

R.M. Kovacevic, University of Vienna, Wien, Austria; G.C. Pflug, University of Vienna, Wien, Austria; M.T. Vespucci, University of Bergamo, Dalmine, Italy (Eds.)

## Handbook of Risk Management in Energy Production and Trading

This book presents an overview of the risks involved in modern electricity production, delivery and trading, including technical risk in production, transportation and delivery, operational risk for the system operators, market risks for traders, and political and other long term risks in strategic management. Using decision making under uncertainty as a methodological background, the book is divided into four parts, with Part I focusing on energy markets, particularly electricity markets. Topics include a nontechnical overview of energy markets and their main properties, basic price models for energy commodity prices, and modeling approaches for electricity price processes. Part II [...]

### Features

This book presents an overview of the risks involved in modern electricity production, delivery and trading, including technical risk in production, transportation and delivery, operational risk for the system operators, market risks for traders, and political and other long term risks in strategic management. Using decision making under uncertainty as a methodological background, the book is divided into [...]

### Contents

Energy Markets.- Introduction to Price Models for Energy.- Price Dynamics in Electricity Markets.- Price-Driven Hydropower Dispatch Under Uncertainty.- On Cutting Plane Algorithms and Dynamic Programming for Hydroelectricity Generation.- Medium-Term Operational Planning for Hydrothermal Systems.- Stochastic Optimization of Power Generation and Storage Management in a Market Environment.- Risk Measures in Multi-horizon Scenario Trees.- Controlled Islanding as Robust Operator Response under Uncertainty.- Complementarity and Game-theoretical Models for Equilibria in Energy Markets:[...]

### Fields of interest

Operation Research / Decision Theory; Energy Technology; Energy Economics

### Target groups

Research

### Type of publication

Handbook

More on [www.springer.com/978-1-4614-9034-0](http://www.springer.com/978-1-4614-9034-0)

### Hardcover

2014. X, 496 p. 149 illus., 81 illus. in color. (International Series in Operations Research & Management Science, Vol. 199)

ISBN 978-1-4614-9034-0

**Due: October 31, 2013**

F.J. Martínez-López, Universidad de Granada, Granada, Spain (Ed.)

## Handbook of Strategic e-Business Management

This research handbook provides a comprehensive, integrative, and authoritative resource on the main strategic management issues for companies within the e-business context. It covers an extensive set of topics, dealing with the major issues which articulate the e-business framework from a business perspective. The handbook is divided into the following e-business related parts: background; evolved strategic framework for the management of companies; key business processes, areas and activities; and, finally, emerging issues, trends and opportunities, with special attention to diverse Social Web-related implications. The articles are varied, timely and present high-quality research; [...]

### Features

This research handbook provides a comprehensive, integrative, and authoritative resource on the main strategic management issues for companies within the e-business context. It covers an extensive set of topics, dealing with the major issues which articulate the e-business framework from a business perspective. The handbook is divided into the following e-business related parts: background; evolved strategic [...]

### Contents

Part A: Background.- Part B: Evolved Strategic Framework for the Management of Companies.- Part C: Key Business Processes, Areas and Activities.- Part D: Emerging Issues, Trends and Opportunities.

### Fields of interest

Business & Management Science; Computer Science (general)

### Target groups

Research

### Type of publication

Handbook

More on [www.springer.com/978-3-642-39746-2](http://www.springer.com/978-3-642-39746-2)

### Hardcover

2014. VIII, 1023 p. 53 illus. (Progress in IS)

ISBN 978-3-642-39746-2

**Due: September 30, 2013**

F. Abolhassan, T-Systems International GmbH, Saarbrücken, Germany (Ed.)

## IT Production in the 21st Century

### The Road to a Modern IT Factory

IT is currently going through one of its most critical phases of transformation. IT vendors and IT service organizations are revolutionizing their production and service processes, adopting industrial practices. It is only through the consistent transformation into factory-like structures that quality, effectiveness and efficiency can be increased. By integrating professional concepts and methods taken from the context of industrial production, it is possible to meet functional and qualitative requirements from the departments and therefore from the end user. On top of that this new paradigm enables the implementation of optimal processes in the organization. An interdisciplinary team [...]

### Features

IT is currently going through one of its most critical phases of transformation. IT vendors and IT service organizations are revolutionizing their production and service processes, adopting industrial practices. It is only through the consistent transformation into factory-like structures that quality, effectiveness and efficiency can be increased. By integrating professional concepts and methods taken from [...]

### Contents

Part 1: Critical Factors for Successful Global IT Service Organizations.- Part 2: Industrial Reformation.- Part 3: Tools for Immediate Optimization and Greater Efficiency.- Part 4: Structural Changes.- Part 5: Innovation Ecosystem.- Part 6: A Route for Industrial IT Production.

### Fields of interest

Business Information Systems; Management of Computing and Information Systems; Technology Management; Management/Business for Professionals

### Target groups

Professional/practitioner

### Type of publication

Professional book

More on [www.springer.com/978-3-642-40218-0](http://www.springer.com/978-3-642-40218-0)

### Hardcover

2014. XX, 210 p. 73 illus. (Management for Professionals)

ISBN 978-3-642-40218-0

**Due: October 31, 2013**

S. Ray, Xavier Institute of Management, Bhubaneswar, India; S.S. Raju, Tata Institute of Social Sciences, Deonar, Mumbai, India (Eds.)

## Implementing Corporate Social Responsibility

### Indian Perspectives

Corporate Social Responsibility has gained new legitimacy in India with two recent guidelines aimed to streamline CSR in Indian public and private sector. The need for structure and systems to manage CSR is the call of the day. The new mandate calls for new thinking in planning, implementing, monitoring, evaluating and communicating CSR work across all stakeholder groups. This book is one of the first attempts to address the practical issues and managerial challenges in delivering social impact through CSR. Authoritative articles focus on issues in CSR in India while corporate case studies highlight best practices and challenges faced by Indian managers. The proposed book will be a[...]

### Features

Corporate Social Responsibility has gained new legitimacy in India with two recent guidelines aimed to streamline CSR in Indian public and private sector. The need for structure and systems to manage CSR is the call of the day. The new mandate calls for new thinking in planning, implementing, monitoring, evaluating and communicating CSR work across all stakeholder groups. This book is one of the first [...]

### Contents

Articles: 1. Social responsibility and the Indian Entrepreneur.- 2. Deconstructing the debates on CSR.- 3. An agenda for CSR of SMEs in India.- 4. CSR in Indian PSUs.- 5. Impact assessment of CSR: approaches and issues.- 6. Role of district administration in community and social development through CSR initiatives.- Case Studies: a. CSR at Indian Oil Corporation.- b. CSR at Steel Authority of India.- c. CSR at Tata Motors.- d. CSR at Shipping Corporation of India Limited.- e. CSR at Oil and Natural Gas Corporation.

### Fields of interest

Non-Profit Enterprises/Corporate Social Responsibility; Social Policy

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-81-322-1652-0](http://www.springer.com/978-81-322-1652-0)

### Hardcover

2014. Approx. 175 p.  
ISBN 978-81-322-1652-0

**Due: December 2, 2013**

G.S. Hiremath, Indian Institute of Technology Jodhpur, Jodhpur, India

## Indian Stock Market

### An Empirical Analysis of Informational Efficiency

India is one of the major emerging economies of the world and has witnessed tremendous economic growth over the last decades. The reforms in the financial sector were introduced to infuse energy and vibrancy into the process of economic growth. The Indian stock market now has the largest number of listed companies in the world. The phenomenal growth of the Indian equity market and its growing importance in the economy is indicated by the extent of market capitalization and the increasing integration of the Indian economy with the global economy. Various schools of thought explain the behaviour of stock returns. The Efficient Market Theory is the most important theory of the School of[...]

### Features

India is one of the major emerging economies of the world and has witnessed tremendous economic growth over the last decades. The reforms in the financial sector were introduced to infuse energy and vibrancy into the process of economic growth. The Indian stock market now has the largest number of listed companies in the world. The phenomenal growth of the Indian equity market and its growing importance in the [...]

### Contents

Introduction.- Random Walk Characteristics of Stock Returns.- Nonlinear Dependence in Stock returns.- Mean Reverting Tendency in Stock Returns.- Long Memory in Stock Returns: Theory and Evidence.- Long Memory in Stock Market Volatility.- Summary and Conclusion

### Fields of interest

Financial Economics; Econometrics; Finance / Banking; Emerging Markets/Globalization

### Target groups

Research

### Type of publication

Brief

More on [www.springer.com/978-81-322-1589-9](http://www.springer.com/978-81-322-1589-9)

### Softcover

2014. XIX, 122 p. 7 illus. (SpringerBriefs in Economics)  
ISBN 978-81-322-1589-9

**Due: October 31, 2013**

N. Ghosh, Institute of Economic Growth, New Delhi, India

## India's Agricultural Marketing

### Market Reforms and Emergence of New Channels

The proposed book provides an assessment of an important yet controversial policy initiated by the Indian government and governments of several other developing countries. Marketing reforms, it is claimed, can be a crucial answer to solving the problem of rural poverty in agrarian economies where large sections of populace are engaged in low paying agriculture. On a wider front, these reforms could help in providing growth impetus to an economy and even the global economy at large. Yet, the subject of liberalizing agricultural markets is also part of a broad and perhaps a bitter political debate between national and sub-national policy makers and academic discourses in India and[...]

### Features

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### Contents

Chapter 1 : Introduction.- Chapter 2: Evolution and re-constitution of Markets.- Chapter 3: International perspectives and Lessons for India.- Chapter 4: Objectives, Data and Methodology.- Chapter 5: India's Agricultural Markets: Regulation and revitalization.- Chapter 6: Contemporary reforms and the Transitions in Sample states.- Chapter 7 : Socio-economic conditions and Agriculture in Sample States.- Chapter 8: Selling to Corporate Marketing Intermediaries.- Chapter 9: Selling to Processors on Contract.- Chapter 10: Selling to Organized Retailers.- Chapter 11: Direct Marketing by[...]

### Fields of interest

Agricultural Economics; Agriculture; Marketing

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-81-322-1571-4](http://www.springer.com/978-81-322-1571-4)

### Hardcover

2014. XV, 311 p. 13 illus. (India Studies in Business and Economics)  
ISBN 978-81-322-1571-4

**Due: October 31, 2013**

M.A. Weresa, World Economy Research Institute, Warsaw, Poland (Ed.)

## Innovation, Human Capital and Trade Competitiveness

How Are They Connected and Why Do They Matter?

This work focuses on researching and establishing the importance of human capital and innovation as determinants of competitive advantages in international trade—in the context of rapidly evolving technological advancement, globalization, and economic integration. The processes that accompany the shift from industrial economics to a knowledge-based economy are currently the object of interest of both scientists, politicians, investors and entrepreneurs. In many countries, the traditional sources of socio-economic development, such as low labor costs, availability of inexpensive raw materials, and favorable geographic location are waning. These economies are searching for new sources of [...]

### Features

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### Contents

Preface.- Part I Human Capital and Innovations vs. Competitive Advantages in Foreign Trade.- Chapter 1 Theoretical Grounds of the Development of Long-Term Competitive Advantages in International Trade.- Chapter 2 Human Capital and Innovation: Basic Concepts, Measures and Interdependencies.- Chapter 3 Concept of National Innovation System and International Competitiveness: Theoretical Approach.- Chapter 4 Innovations and Human Capital as Determinants of the Competitiveness of Nations in International Trade: the Model Approach.- Part II Changes in Competitive Advantages in Foreign Trade[...]

### Fields of interest

Economic Policy; Regional Science; Development Economics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02071-6](http://www.springer.com/978-3-319-02071-6)

### Hardcover

Original Polish edition published by the Warsaw School of Economics Publishing Office, Warsaw, 2014  
2014. I, 539 p. 129 illus. (Innovation, Technology, and Knowledge Management)  
ISBN 978-3-319-02071-6

**Due: November 30, 2013**

M. Li, J. Liu

## Innovative Advisory Services in the Virtual World

An Empowerment Perspective

How to effectively design and deliver virtual advisory services can be a mystery to many public and private organisations. This study examines the interesting phenomenon of providing virtual advisors to assist users in accomplishing their tasks in the digital world. Based on a thorough analysis of abundant typical applications in various business and government sectors, this book discusses the current status and future trends of virtual advisory services in digital environments. This book also reveals exactly what users expect from such services, and what they hate! It provides thought-provoking guidelines for best practice in the design and provision of virtual advisors on e-portals.

### Features

How to effectively design and deliver virtual advisory services can be a mystery to many public and private organisations. This study examines the interesting phenomenon of providing virtual advisors to assist users in accomplishing their tasks in the digital world. Based on a thorough analysis of abundant typical applications in various business and government sectors, this book discusses the current status [...]

### Contents

Introduction.- Virtual advisors in the virtual world.- Virtual advisors in various application domains.- Preliminary data collections on user opinions about virtual advisors.- Discussion and Implications.- Conclusions.

### Fields of interest

Services; Business Strategy/Leadership; Social Sciences (general)

### Target groups

Research

### Type of publication

Brief

More on [www.springer.com/978-3-642-41111-3](http://www.springer.com/978-3-642-41111-3)

### Softcover

2014. X, 67 p. 29 illus. (SpringerBriefs in Business)  
ISBN 978-3-642-41111-3

**Due: October 31, 2013**

C. Busco, M. Frigo, A. Riccaboni, University of Siena, Siena, Italy; P. Quattrone, The University of Edinburgh, Edinburgh, United Kingdom (Eds.)

## Integrated Reporting

Concepts and Cases that Redefine Corporate Accountability

This book focuses on Integrated Reporting as a contemporary social and managerial innovation where a number of initiatives, organizations and individuals began to converge in response to the need for a consistent, collaborative and internationally accepted approach to redesign corporate reporting. Integrated Reporting is a process that results in communication of the annual "integrated report" which describes value creation over time. An integrated report is a concise communication about how an organization's strategy, governance, performance and prospects lead to the creation of value over the short, medium and long term. This book offers a fresh perspective with expert contributions[...]

### Features

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### Contents

1. Towards Integrated Reporting: concepts, elements and principles.- 2. What is sustainability? A review of the concept and its applications.- 3. Annual reports, Sustainability reports and Integrated reports: trends in corporate disclosure.- 4. The connectivity of information for the Integrated Reporting.- 5. Materiality and assurance: building the link.- 6. Stakeholder engagement.- 7. "Integrating" Business Model and Strategy.- 8. Performance Measurement and Capitals.- 9. Integrated Reporting and Value-based Cost Management - A Natural Union.- 10. Approaching Risk Management from a [...]

### Fields of interest

Accounting / Auditing; Non-Profit Enterprises/Corporate Social Responsibility; Business Taxation; Ethics

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-02167-6](http://www.springer.com/978-3-319-02167-6)

### Hardcover

2014. IV, 339 p. 55 illus., 45 illus. in color.  
ISBN 978-3-319-02167-6

**Due: November 30, 2013**

T.-M. Choi, The Hong Kong Polytechnic University, Hong Kong, China (P.R.); C.-L. Hui, The Hong Kong Polytechnic University, Hong Kong, China (P.R.); Y. Yu, The Hong Kong Polytechnic University, Hong Kong, China (P.R.) (Eds.)

## Intelligent Fashion Forecasting Systems: Models and Applications

Forecasting is a crucial function for companies in the fashion industry, but for many real-life forecasting applications in the, the data patterns are notorious for being highly volatile and it is very difficult, if not impossible, to analytically learn about the underlying patterns. As a result, many traditional methods (such as pure statistical models) will fail to make a sound prediction. Over the past decade, advances in artificial intelligence and computing technologies have provided an alternative way of generating precise and accurate forecasting results for fashion businesses. Despite being an important and timely topic, there is currently an absence of a comprehensive[...]

### Features

Forecasting is a crucial function for companies in the fashion industry, but for many real-life forecasting applications in the, the data patterns are notorious for being highly volatile and it is very difficult, if not impossible, to analytically learn about the underlying patterns. As a result, many traditional methods (such as pure statistical models) will fail to make a sound prediction. Over the past [...]

### Contents

Part I: Introduction, review and exploratory studies.- 1.1 Introduction: Intelligent Fashion Forecasting.- 1.2 Sales forecasting in Apparel and Fashion Industry: a review.- Collaborative Planning Forecasting Replenishment Schemes in Apparel Supply Chain Systems: Cases and Research Opportunities.- Part II: Theoretical modeling research.- 2.1 Measuring Forecasting Accuracy: Problems and Recommendations (by the example of SKU-level judgmental adjustments).- 2.2 Forecasting Demand for Fashion Goods: A Hierarchical Bayesian Approach.- Forecasting Fashion Store Reservations: Booking Horizon[...]

### Fields of interest

Business Information Systems; Information Systems Applications (incl.Internet); Production / Logistics

### Target groups

Professional/practitioner

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-39868-1](http://www.springer.com/978-3-642-39868-1)

### Hardcover

2014. VI, 180 p. 75 illus., 48 illus. in color.  
ISBN 978-3-642-39868-1

**Due: November 30, 2013**

J.K. Perret

## Knowledge as a Driver of Regional Growth in the Russian Federation

The Russian Federation has a history of more than twenty years of transformation to a market economy, but as well to a knowledge society, to look back on. This study takes a look at the knowledge generation, knowledge transmission and knowledge use inside the Federation since the early 1990s. Furthermore, in light of the high dependence of the Russian economy on the oil and gas sectors this study analyzes the impact knowledge related factors have on regional income generation following thereby in the direction of Schumpeterian growth theory. The study combines descriptive with empirical analyses to paint a picture as detailed as possible of the Russian knowledge society and its[...]

### Features

The Russian Federation has a history of more than twenty years of transformation to a market economy, but as well to a knowledge society, to look back on. This study takes a look at the knowledge generation, knowledge transmission and knowledge use inside the Federation since the early 1990s. Furthermore, in light of the high dependence of the Russian economy on the oil and gas sectors this study analyzes the [...]

### Contents

Introduction.- Regional Layout of the Russian Federation.- Relevant Economic Terms and Concepts in a Russian Context.- Growth Theoretical Aspects.- Methodology.- On the Importance of Knowledge in the Russian Federation.- Policy Option.- Conclusions.

### Fields of interest

Economic Growth; Regional Science; Economic Geography; R & D / Technology Policy; Educational Policy and Politics; Technology Management

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40278-4](http://www.springer.com/978-3-642-40278-4)

### Hardcover

2014. XX, 351 p. 65 illus.  
ISBN 978-3-642-40278-4

**Due: October 31, 2013**

P. Vanderbroeck

## Leadership Strategies for Women

Lessons from Four Queens on Leadership and Career Development

How do women leaders make it to the top of an organization? How can women stay at the top when most of their colleagues are men? What should women do to exercise leadership well? This book tells the stories of four powerful women who knew the answers to these three questions. Therefore, this book also explicitly identifies the key factors in these leaders' career success, and it elucidates the competencies that enabled the women to exercise leadership effectively. The four success stories offer women who already serve in leadership roles and those who aspire to become great leaders both inspiration and practical lessons that can be applied to real-world challenges.

### Features

How do women leaders make it to the top of an organization? How can women stay at the top when most of their colleagues are men? What should women do to exercise leadership well? This book tells the stories of four powerful women who knew the answers to these three questions. Therefore, this book also explicitly identifies the key factors in these leaders' career success, and it elucidates the competencies [...]

### Contents

Introduction.- I Cleopatra VII: Leveraging Difference.- II Isabella of Spain: A woman With Visions.- III Elizabeth I of England: Managing a Team of Men.- IV Catherine the Great: Leading Strategic Growth.- V Four Queens: Lessons in Career Development.- VI Four Queens: Lessons in Leadership.

### Fields of interest

Management/Business for Professionals; Business Strategy/Leadership; Personnel Management

### Target groups

Professional/practitioner

### Type of publication

Professional book

More on [www.springer.com/978-3-642-39622-9](http://www.springer.com/978-3-642-39622-9)

### Hardcover

2014. XIII, 115 p. 20 illus., 8 illus. in color. (Management for Professionals)  
ISBN 978-3-642-39622-9

**Due: September 30, 2013**

M.M. Rahim, Queensland University of Technology, Eastlakes, Australia

## Legal Regulation of Corporate Social Responsibility

A Meta-Regulation Approach of Law for Raising CSR in a Weak Economy

Even though Corporate Social Responsibility (CSR) has become a widely accepted concept promoted by different stakeholders, business corporations' internal strategies, known as corporate self-regulation in most of the weak economies, respond poorly to this responsibility. Major laws relating to corporate regulation and responsibilities of these economies do not possess adequate ongoing influence to insist on corporate self-regulation to create a socially responsible corporate culture. This book describes how the laws relating to CSR could contribute to the inclusion of CSR principles at the core of the corporate self-regulation of these economies in general, without being intrusive in[...]

### Features

Even though Corporate Social Responsibility (CSR) has become a widely accepted concept promoted by different stakeholders, business corporations' internal strategies, known as corporate self-regulation in most of the weak economies, respond poorly to this responsibility. Major laws relating to corporate regulation and responsibilities of these economies do not possess adequate ongoing influence to insist on [...]

### Contents

Chapter 1: Introducing the book.- Chapter 2: Corporate social Responsibility (CSR). Corporate Governance (CG) and Corporate Regulation.- Chapter 3: The Theoretical Basis for the Implementation of CSR Principles Through Legal Regulation.- Chapter 4: The Legal Regulation Strategies for Incorporating CSR Principles in Corporate Self-Regulation.- Chapter 6: Legal Regulation of CSR in a Weak Economy: The Case of Bangladesh.- Chapter 7: Concluding the Book.

### Fields of interest

Non-Profit Enterprises/Corporate Social Responsibility; Private International Law, International & Foreign Law, Comparative Law; Ethics; Organization / Planning; Development Economics; International Economic Law, Trade Law

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40399-6](http://www.springer.com/978-3-642-40399-6)

### Hardcover

2014. XVIII, 322 p. 3 illus. (CSR, Sustainability, Ethics & Governance)  
ISBN 978-3-642-40399-6

**Due: October 31, 2013**

H. Gleissner, Berlin School of Economics and Law, Berlin, Germany; J.C. Femerling, Investa Holding GmbH, Munich, Germany

## Logistics

Basics - Exercises - Case Studies

Logistics is the ideal book for Bachelor students of logistics, providing a solid foundation as well as a practical guide. In modular and clear form, it explains key concepts, principles, and practices of logistics. Learning objectives as well as several case studies are integrated into each chapter. It features chapters on Principles of Logistics; Logistics Systems; Transport Systems and Logistics Services; Warehousing, Handling and Picking Systems; Inventory, Stock and Provisioning Management; Logistics Network Planning; IT in Logistics; and Logistics Controlling. In addition, the second fully updated German edition has been extended by the chapters Logistics Infrastructure and[...]

### Features

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### Contents

Introduction.- The Principles of Logistics.- Logistics Systems.- Logistical Infrastructure.- Transport Systems and Logistics Services.- Warehousing, Handling, and Picking Systems.- Inventory, Stock, and Provisioning Management.- Logistics Network Planning.- IT in Logistics.- Investment and Financing in Logistics.- Logistics Controlling.- Business Models and Industry Solutions.

### Fields of interest

Production / Logistics; Engineering Economics, Organization, Logistics, Marketing; Organization / Planning

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-319-01768-6](http://www.springer.com/978-3-319-01768-6)

### Hardcover

2014. XXI, 301 p. 156 illus. (Springer Texts in Business and Economics)  
ISBN 978-3-319-01768-6

**Due: October 31, 2013**

G. Lang, Centre for Europe, Mannheim, Germany

## Macro Attractiveness and Micro Decisions in the Mutual Fund Industry

An Empirical Analysis

This volume addresses the attractiveness of financial centers with a primary focus on the mutual fund industry. It uses different empirical analysis approaches in an attempt to disentangle the reasons for location attractiveness and in order to identify its influence on fund pricing. The presented research tackles an issue that is fundamental to the understanding of organizational behavior in finance – the rationale in the decision-making process of market participants and its consequences for an economy.

### Features

This volume addresses the attractiveness of financial centers with a primary focus on the mutual fund industry. It uses different empirical analysis approaches in an attempt to disentangle the reasons for location attractiveness and in order to identify its influence on fund pricing. The presented research tackles an issue that is fundamental to the understanding of organizational behavior in finance – the [...]

### Contents

General Introduction.- Theoretical Background.- Attractiveness of European Financial Centers.- Evidence from Domiciliation Decisions in the Mutual Fund Industry.- Impact of the Domiciliation Decision on Fund Fees.- General Conclusion.- Appendix.

### Fields of interest

Financial Economics; Finance / Banking; European Integration; Economic Policy

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39723-3](http://www.springer.com/978-3-642-39723-3)

### Hardcover

2014. XII, 174 p. 17 illus. (ZEW Economic Studies, Vol. 47)  
ISBN 978-3-642-39723-3

**Due: October 31, 2013**

Ü. Hacıoğlu, Beykent University, Büyükdere, Turkey; H. Dincer, Beykent University, Büyükdere, Turkey (Eds.)

## Managerial Issues in Finance and Banking

### A Strategic Approach to Competitiveness

This book discusses competitive issues related to globalization, financial system and institutions from a managerial perspective. Contributions in this volume cover competitive strategies, risk management, controlling and custom finance in Finance & Banking. The novelty of the book is in demonstrating the innovative solutions to managerial issues in the global financial system. The contributions in this volume are peer-reviewed by the Society for the Study of Business and Finance.

#### Features

This book discusses competitive issues related to globalization, financial system and institutions from a managerial perspective. Contributions in this volume cover competitive strategies, risk management, controlling and custom finance in Finance & Banking. The novelty of the book is in demonstrating the innovative solutions to managerial issues in the global financial system. The contributions in this [...]

#### Contents

Section I: Global Issues in Economics and Finance.- Section II: Risk Management and Auditing.- Section III: Competitiveness and Management in Financial Institutions.- Section IV: Custom Finance in Theory and Practice.

#### Fields of interest

Finance / Banking; Emerging Markets/Globalization; Financial Economics; Business Strategy/Leadership

#### Target groups

Research

#### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-01386-2](http://www.springer.com/978-3-319-01386-2)

#### Hardcover

2014. XIII, 275 p. 10 illus.  
ISBN 978-3-319-01386-2

**Due: October 31, 2013**

N. Schofield, Washington University in Saint Louis, Saint Louis, USA

## Mathematical Methods in Economics and Social Choice

In recent years, the usual optimization techniques, which have proved so useful in microeconomic theory, have been extended to incorporate more powerful topological and differential methods, and these methods have led to new results on the qualitative behavior of general economic and political systems. These developments have necessarily resulted in an increase in the degree of formalism in the publications in the academic journals. This formalism can often deter graduate students. The progression of ideas presented in this book will familiarize the student with the geometric concepts underlying these topological methods, and, as a result, make mathematical economics, general [...]

#### Features

In recent years, the usual optimization techniques, which have proved so useful in microeconomic theory, have been extended to incorporate more powerful topological and differential methods, and these methods have led to new results on the qualitative behavior of general economic and political systems. These developments have necessarily resulted in an increase in the degree of formalism in the publications in [...]

#### Contents

Sets, Relations and Preferences.- Linear Spaces and Transformations.- Topology and Convex Optimization.- Differential Calculus and Smooth Optimization.- Singularity Theory and General Equilibria.- Topology and Social Choice.

#### Fields of interest

Game Theory / Mathematical Methods; Economic Theory; Political Science, general; Game Theory, Economics, Social and Behav. Sciences; Public Finance & Economics

#### Target groups

Research

#### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-39817-9](http://www.springer.com/978-3-642-39817-9)

#### Hardcover

Originally published as volume 17 in the series: Studies in Economic Theory  
2014. XIV, 310 p. 95 illus. (Springer Texts in Business and Economics)  
ISBN 978-3-642-39817-9

**Due: October 31, 2013**

A. Sönmez, Middle East Technical University (METU), Ankara, Turkey

## Multinational Companies, Knowledge and Technology Transfer

### Turkey's Automotive Industry in Focus

This book provides evidence on how FDI leads to knowledge and technology transfers towards domestic firms by paying attention to the role of multinational companies. The author presents a comprehensive empirical research conducted at firm-level in the Turkish automotive industry. Using a representative sample of face-to-face in-depth interviews with top-executives and a survey of top level managers of domestic suppliers, the research analyzes the existence, channels, intensity and determinants, and the kind of transfers that occur at both inter- and intra-firm level in the industry. The author contends that policies aimed at attracting FDI flows should be re-examined under the [...]

#### Features

This book provides evidence on how FDI leads to knowledge and technology transfers towards domestic firms by paying attention to the role of multinational companies. The author presents a comprehensive empirical research conducted at firm-level in the Turkish automotive industry. Using a representative sample of face-to-face in-depth interviews with top-executives and a survey of top level managers of domestic [...]

#### Contents

1. Introduction.- 2. Multinational Companies, Knowledge and Technology Transfer: Theoretical Framework.- 3. Research Methodology and Design.- 4. Survey Findings: Descriptive Analysis.- 5. Survey Findings: Econometric Analysis.- 6. Findings and Analysis of the Interviews.- 7. Conclusion.

#### Fields of interest

Technology Management; Automotive Engineering; Entrepreneurship; Emerging Markets/Globalization

#### Target groups

Research

#### Type of publication

Monograph

More on [www.springer.com/978-3-319-02032-7](http://www.springer.com/978-3-319-02032-7)

#### Hardcover

2014. X, 312 p. 26 illus., 24 illus. in color. (Contributions to Management Science)  
ISBN 978-3-319-02032-7

**Due: November 30, 2013**

S. Grossbard

## On the Economics of Marriage

A Theory of Marriage, Labor and Divorce

While this book contains numerous facts and empirical findings and touches on policy issues, its main contribution to the existing literature lies in the theoretical perspective it offers. The core of this book is a general equilibrium theory of labor and marriage presented in Chapter 2, which provides the conceptual framework for the rest of the chapters. Two major implications of the theory are sex ratio effects and compensating differentials in marriage. The book demonstrates how a few core concepts, linked via economic analysis, help explain a multitude of findings based on statistical analyses of data from a wide variety of cultures. It is hoped that readers of this book will[...]

### Features

While this book contains numerous facts and empirical findings and touches on policy issues, its main contribution to the existing literature lies in the theoretical perspective it offers. The core of this book is a general equilibrium theory of labor and marriage presented in Chapter 2, which provides the conceptual framework for the rest of the chapters. Two major implications of the theory are sex ratio [...]

### Fields of interest

Labor Economics; Family; Sociology, general; Anthropology; Microeconomics

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-1622-7](http://www.springer.com/978-1-4614-1622-7)

### Hardcover

2014. 370 p.

ISBN 978-1-4614-1622-7

**Due: December 20, 2013**

Y. Jiang, Shanghai International Studies University, Shanghai, China (P.R.)

## Openness, Economic Growth and Regional Disparities

The Case of China

Substantial disparities across different Chinese regions are one of the most prominent features in China's development process. This book investigates the mechanisms through which openness affects regional economic growth and interregional disparities in China. Based on the latest data and employing a variety of panel data regression techniques, it provides readers with new findings that shed light on the effects of openness on China's regional economic growth and the evolution of the country's interregional disparities.

### Features

Substantial disparities across different Chinese regions are one of the most prominent features in China's development process. This book investigates the mechanisms through which openness affects regional economic growth and interregional disparities in China. Based on the latest data and employing a variety of panel data regression techniques, it provides readers with new findings that shed light on the [...]

### Contents

Preface.- Introduction.- Output Growth and Productivity Growth in China.- Growth and Convergence across the Chinese Regions.- Openness and Regional Growth in China.- Openness, Human Capital, and Productivity Growth in the Chinese Regions.- Foreign Direct Investment and Regional Productivity Growth in China.- Endogenous Saving, Interregional Capital Mobility, and Convergence across China.- Inputs beyond Capital and Labor, the Neoclassical Growth Framework, and Limits to Growth in China.- Industry Mix and Interregional Disparities in China.- Openness, Structural Factors, and Economic[...]

### Fields of interest

Economic Growth; Political Economy; Regional and Cultural Studies

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40665-2](http://www.springer.com/978-3-642-40665-2)

### Hardcover

2014. X, 495 p. 29 illus., 25 illus. in color.

ISBN 978-3-642-40665-2

**Due: October 31, 2013**

S.R. Balzac

## Organizational Psychology for Managers

No matter how monolithic it may appear, an organization is a collection of moving parts. Whether we are looking at building teams, providing leadership, hiring and training employees, problem solving, managing time effectively, or setting aggressive, inspiring goals, every decision can easily impact every other decision. The complexity can quickly become overwhelming. Organizational Psychology identifies a framework and offers key methodologies managers need to define behavioral tendencies and navigate complex organizational systems. Each chapter takes a high-level view of a particular aspect of organizational psychology, focusing on elements that shape companies and drive[...]

### Features

No matter how monolithic it may appear, an organization is a collection of moving parts. Whether we are looking at building teams, providing leadership, hiring and training employees, problem solving, managing time effectively, or setting aggressive, inspiring goals, every decision can easily impact every other decision. The complexity can quickly become overwhelming. Organizational Psychology for [...]

### Contents

Chapter 1: The Vortex: Organizations as Systems.- Chapter 2: Telling Your Story: Organizational Vision as a Driver of Success.- Chapter 3: The Life Cycle of a Team: Development, Problem Solving, and Decision Making.- Chapter 4: Leadership, Power, and Emotional Intelligence.- Chapter 5: Motivating and Loyalty: Creating a Motivated Work Force.- Chapter 6: Recruiting with Confidence: Developing Effective Strategies and Having the Confidence to Use Them.- Chapter 7: Justice and Fairness in Organizations.- Chapter 8: Organizational Learning.- Chapter 9: The Myth of Productivity:[...]

### Fields of interest

Management/Business for Professionals; Organization / Planning; General Psychology

### Target groups

Professional/practitioner

### Type of publication

Professional book

More on [www.springer.com/978-1-4614-8504-9](http://www.springer.com/978-1-4614-8504-9)

### Hardcover

2014. XVII, 266 p. 4 illus. (Management for Professionals)

ISBN 978-1-4614-8504-9

**usually dispatched within 3 to 5 business days**

M.A. Ramady

## Political, Economic and Financial Country Risk

Analysis of the Gulf Cooperation Council

"Decades go by and nothing happens; then weeks go by and decades happen". This apt saying encapsulates the dramatic convulsions taking place across the Arab world that first erupted in 2011 in Tunisia and which rapidly spread to other countries. These events have affected the lives of ordinary citizens in many more ways than had been intended when the 'Arab Spring' broke out, with the endgame still not very clear as demonstrated in countries like Egypt, Syria and Libya. By comparison, with some exceptions, the six countries comprising the Gulf Cooperation Council have been relatively unaffected by the general turbulence and uncertainties lapping around them. However, geopolitical[...]

### Features

"Decades go by and nothing happens; then weeks go by and decades happen". This apt saying encapsulates the dramatic convulsions taking place across the Arab world that first erupted in 2011 in Tunisia and which rapidly spread to other countries. These events have affected the lives of ordinary citizens in many more ways than had been intended when the 'Arab Spring' broke out, with the endgame still not [...]

### Contents

Part I.- Foundation and Key concepts.- GCC Country Risk and the " Arab Spring ".- Country Risk assessments.- Part II : Indicators of Country Risk analysis.- Indicators of Financial Risk.- Determinants of Country economic risk.- Country political risk contents.- Part III : GCC Country economic , financial and political risk analysis.- Kingdom of Saudi Arabia risk analysis.- State of Kuwait risk analysis.- State of Qatar risk analysis.- Kingdom of Bahrain risk analysis.- Sultanate of Oman risk analysis.- United Arab Emirates risk analysis.- GCC Composite Risk : Political risk[...]

### Fields of interest

Economics; Political Economy; Comparative Politics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02176-8](http://www.springer.com/978-3-319-02176-8)

### Hardcover

2014. XVIII, 271 p. 94 illus.  
ISBN 978-3-319-02176-8**Due: October 31, 2013**

L. Wang

## Poverty Alleviation Investment and Private Economy in China

An Exploration of The Guangcai Programme

This book explores the mechanisms and significance of China's private economy participating in poverty alleviation. By basing its analysis on theories of development economics and public economics, the book stresses practical significance and abandons unreasonable assumptions. It uses a systematic set of statistical analysis tools and descriptive statistics to provide a multidimensional and highly visual format. Beyond the traditional qualitative comparison of countries, it also introduces quantitative comparison. Considering the increasing concern and curiosity about China's booming economy and rising private sector, the book is highly topical, offering readers theoretical insights[...]

### Features

This book explores the mechanisms and significance of China's private economy participating in poverty alleviation. By basing its analysis on theories of development economics and public economics, the book stresses practical significance and abandons unreasonable assumptions. It uses a systematic set of statistical analysis tools and descriptive statistics to provide a multidimensional and highly visual [...]

### Contents

Preface.- Chapter I: The Development of the Guangcai Programme.- Chapter II: The Development of the Guangcai Programme.- Chapter III#Theoretical Structure of the Guangcai Programme.- Chapter IV# The Guangcai Programme and the Poverty Alleviation Mechanism of NGOs.- Chapter V#The Guangcai Programme and the Transformation of China's Poverty Alleviation.- Chapter VI#The Guangcai Programme and Transformation of Poverty-Alleviation Model.

### Fields of interest

Non-Profit Enterprises/Corporate Social Responsibility; Technology Management; Organizational Studies, Economic Sociology

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40611-9](http://www.springer.com/978-3-642-40611-9)

### Hardcover

2014. XI, 160 p. 8 illus.  
ISBN 978-3-642-40611-9**Due: October 31, 2013**

M. Vanhoucke, Ghent University, Gent, Belgium

## Project Management with Dynamic Scheduling

Baseline Scheduling, Risk Analysis and Project Control

The topic of this book is known as dynamic scheduling, and is used to refer to three dimensions of project management and scheduling: the construction of a baseline schedule and the analysis of a project schedule's risk as preparation of the project control phase during project progress. This dynamic scheduling point of view implicitly assumes that the usability of a project's baseline schedule is rather limited and only acts as a point of reference in the project life cycle. Consequently, a project schedule should especially be considered as nothing more than a predictive model that can be used for resource efficiency calculations, time and cost risk analyses, project tracking and[...]

### Features

The topic of this book is known as dynamic scheduling, and is used to refer to three dimensions of project management and scheduling: the construction of a baseline schedule and the analysis of a project schedule's risk as preparation of the project control phase during project progress. This dynamic scheduling point of view implicitly assumes that the usability of a project's baseline schedule is rather [...]

### Contents

Preface.- I Scheduling without resources.- II Scheduling with resources.- III Project control.- IV Scheduling with software.- V Conclusions.- Index.

### Fields of interest

Operation Research / Decision Theory; Organization / Planning; Management/Business for Professionals; Operations Research, Mathematical Programming

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40437-5](http://www.springer.com/978-3-642-40437-5)

### Hardcover

2014. XVIII, 318 p. 123 illus.  
ISBN 978-3-642-40437-5**Due: November 30, 2013**

P. Srivastava

## Recreational Drug Consumption

An Economic Perspective

Recreational drug policies and regulations are complex issues with many dimensions. This book attempts to answer several questions raised in current drug policy debates. Developing cost-effective drug programs and policies require a sound knowledge of drug users and their characteristics and the relationship across drugs. Who are the drug users? Can demographic factors help towards predicting drug usage? What sub-population groups should be targeted for drug campaigns and educational programs? Can a drug policy aimed at discouraging the use of one drug likely to affect the use of other drugs which are its economic substitutes or complements? What are the implications of drug use? [...]

### Features

Recreational drug policies and regulations are complex issues with many dimensions. This book attempts to answer several questions raised in current drug policy debates. Developing cost-effective drug programs and policies require a sound knowledge of drug users and their characteristics and the relationship across drugs. Who are the drug users? Can demographic factors help towards predicting drug usage? What [...]

### Contents

Introduction.- Literature Review.- An Overview of Recreational Drug Consumption in Australia.- Modelling Consumption of Individual Drugs.- Modelling Multiple Drug Use using a Multivariate Approach.- Modelling Alcohol Consumption by Levels using an Ordered Generalised Extreme Value (OGEV) Model.- Drinking Patterns and Earnings.- Summary, Policy Implications and Further Research.

### Fields of interest

Health Economics; Social Policy; Health Promotion and Disease Prevention

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02404-2](http://www.springer.com/978-3-319-02404-2)

### Hardcover

2014. VI, 160 p. 14 illus. in color. (Developments in Health Economics and Public Policy, Vol. 11)  
ISBN 978-3-319-02404-2

**Due: November 30, 2013**

D. Seck, CREPOL - Center for Research, Dakar, Senegal (Ed.)

## Regional Economic Integration in West Africa

This book presents a number of key studies pertaining to the most pressing challenges of economic regional integration in West Africa. The issues of monetary coordination, foreign exchange volatility, taxation, savings and macroeconomic convergence are investigated from a regional perspective.

The characteristics of West Africa's trade policy are reviewed and assessed in comparison to that of the Southern African Development Community (SADC). The extent to which regional integration can tackle the challenge of unemployment is the focus of studies on labour markets. Development of the private sector and coordination of regional cross-border transportation are examined through the [...]

### Features

This book presents a number of key studies pertaining to the most pressing challenges of economic regional integration in West Africa. The issues of monetary coordination, foreign exchange volatility, taxation, savings and macroeconomic convergence are investigated from a regional perspective.

The characteristics of West Africa's trade policy are reviewed and assessed in comparison to those of the Southern [...]

### Contents

Introduction.- Part I: Private Sector.- Part II: Regional Macroeconomic Policy.- Part III: Regional Trade.- Part IV: Labor Markets and Policy.

### Fields of interest

Development Economics; Regional Science

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-01281-0](http://www.springer.com/978-3-319-01281-0)

### Hardcover

2014. X, 272 p. 26 illus., 23 illus. in color. (Advances in African Economic, Social and Political Development)  
ISBN 978-3-319-01281-0

**Due: November 30, 2013**

J.R. Cuadrado-Roura, Universidad de Alcalá, Alcalá Henares. Madrid, Spain; P. Aroca, Universidad Adolfo Ibáñez, Vina del Mar, Chile (Eds.)

## Regional Problems and Policies in Latin America

This contributed volume is the first book in English to offer a current and critical vision of regional problems and policies in the countries of Latin America. The book is in three main parts: a general overview of regional processes and trends in Latin America as a whole; country-level coverage of seven individual countries; and comparative analyses of common major problems such as migration, education, labor, poverty, decentralization, exports and foreign direct investments. Written by renowned academics and experts from the region, the book seeks to provide a better understanding of regional challenges and trends, regional disparities that exist in many Latin American countries [...]

### Features

This contributed volume is the first book in English to offer a current and critical vision of regional problems and policies in the countries of Latin America. The book is in three main parts: a general overview of regional processes and trends in Latin America as a whole; country-level coverage of seven individual countries; and comparative analyses of common major problems such as migration, education, [...]

### Contents

Part I: General Overview, Problems, Trends and Regional Policies in Latin America.- Part II: Analysis by Countries.- Part III: Horizontal and Comparative Analysis.

### Fields of interest

Regional Science; Development Economics; Economic Geography

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-39673-1](http://www.springer.com/978-3-642-39673-1)

### Hardcover

2014. X, 580 p. 132 illus., 70 illus. in color. (Advances in Spatial Science)  
ISBN 978-3-642-39673-1

**Due: October 31, 2013**

K. Kijima, Tokyo Institute of Technology, Meguro-ku, Japan (Ed.)

## Service Systems Science

The systems sciences provide a platform of concepts and language that enables communities of interest to transcend disciplinary boundaries toward developing new knowledge and perspectives. The current book series is intended to help to cultivate a new perspective for social systems sciences: The translational systems sciences that we propose in this series is a new trend within systems sciences motivated by the need for practical applications that help people. The present volume, Service Systems Science, focuses in particular on the value cooperatively created and shared in human activities to realize a resilient and sustainable society in a systems science perspective. Service[...]

### Features

The systems sciences provide a platform of concepts and language that enables communities of interest to transcend disciplinary boundaries toward developing new knowledge and perspectives. The current book series is intended to help to cultivate a new perspective for social systems sciences: The translational systems sciences that we propose in this series is a new trend within systems sciences motivated by [...]

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Kyoichi Kijima Value Orchestration in Service Science Perspective Jim Spohrer Service Science and Systems Science Irene Ng Value Co-creation of New Markets in the Digital Economy Scot Sampson Unified Service Theory and PCN Analysis Roy Wiseman Public Service Systems Practice Yuriko Sawatani Service R&D Management Takashi Maeno Service Science and Service Engineering Anssi Smedlund Orchestration Strategies for Service Platform Business Models Timo Rintamaki and Lasse Mitronen Service Systems Analysis of Retail Industry Marja Toivonen From customer knowledge to customer understanding – a challenge[...]

### Fields of interest

Economics; Business & Management Science; Social Sciences (general)

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-4-431-54266-7](http://www.springer.com/978-4-431-54266-7)

### Hardcover

2013. Approx. 280 p. 12 illus. (Translational Systems Sciences, Vol. 2)  
ISBN 978-4-431-54266-7

**Due: November 22, 2013**

G.S. Metcalf, InterConnections, LLC, Ashland, USA (Ed.)

## Social Systems and Design

The purpose of this volume is to provide both a practical and a theoretical foundation for those who are interested in the design of human social systems. It brings together and updates a number of theories, some dating back to the 1950s, as well as providing future direction for an evolving field of study. The chapters trace the various histories of the theories, providing examples of how they continue to influence work today and discussing their very important potential influences on work into the future. The theories covered include the idealized design work of Ackoff, social systems design and evolutionary design of Banathy, the open systems work of Emery and Emery, system[...]

### Features

The purpose of this volume is to provide both a practical and a theoretical foundation for those who are interested in the design of human social systems. It brings together and updates a number of theories, some dating back to the 1950s, as well as providing future direction for an evolving field of study. The chapters trace the various histories of the theories, providing examples of how they continue [...]

### Contents

1. Social systems and design – an overview (Gary Metcalf) 2. From design to social systems (Peter Jones) 3. Ackoff, Banathy and Laszlo: Different approaches or different worlds? (Alexander Laszlo) 4. Russ Ackoff: Idealized Systems Design (John Pourdehnad) 5. Bela Banathy: Design, evolution and dialogue (Kathia Laszlo / Doug Walton / Ken Bausch / Gary Metcalf) 6. John Warfield: A Science of Generic Design (Aleco Christakis & Kevin Dye) 7. System Dynamics (David Lane) 8. From Interactive Management to Cogniscope (Aleco Christakis / Ken Bausch) 9. The Tavistock imprint on[...]

### Fields of interest

Economics; Business & Management Science; Social Sciences (general)

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-4-431-54477-7](http://www.springer.com/978-4-431-54477-7)

### Hardcover

2014. X, 200 p. (Translational Systems Sciences, Vol. 1)  
ISBN 978-4-431-54477-7

**Due: January 15, 2014**

H. Gatignon, INSEAD, Fontainebleau CX, France

## Statistical Analysis of Management Data

Statistical Analysis of Management Data provides a comprehensive approach to multivariate statistical analyses that are important for researchers in all fields of management, including finance, production, accounting, marketing, strategy, technology, and human resources. This book is especially designed to provide doctoral students with a theoretical knowledge of the concepts underlying the most important multivariate techniques and an overview of actual applications. It offers a clear, succinct exposition of each technique with emphasis on when each technique is appropriate and how to use it. This third edition, fully revised, updated, and expanded, reflects the most current[...]

### Features

Statistical Analysis of Management Data provides a comprehensive approach to multivariate statistical analyses that are important for researchers in all fields of management, including finance, production, accounting, marketing, strategy, technology, and human resources. This book is especially designed to provide doctoral students with a theoretical knowledge of the concepts underlying the most [...]

### Contents

1: Introduction.- 2: Multivariate Normal Distribution.- 3: Reliability Alpha, Principles Component Analysis and Exploratory Factor Analysis.- 4: Confirmatory Factor Analysis.- 5: Multiple Regression with a Single Dependent Variable.- 6: System of Equations.- 7: Canonical Correlation Analysis.- 8: Categorical Dependent Variables.- 9: Rank-Ordered Data.- 10: Error in Variables – Analysis of Covariance Structure – Structural Equation Models.- 11: Testing Mediation and Moderation Effects.- 12: Cluster Analysis.- 13: Analysis of Similarity and Preference Data.- Appendices: A: Rules in Matrix[...]

### Fields of interest

Management/Business for Professionals; Marketing; Statistics for Business, Economics, Mathematical Finance, Insurance

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8593-3](http://www.springer.com/978-1-4614-8593-3)

### Hardcover

2014. XV, 563 p. 263 illus., 34 illus. in color.  
ISBN 978-1-4614-8593-3

**Due: October 31, 2013**

I. Gil-Pechuán, D. Palacios-Marqués, Technical University of Valencia, Valencia, Spain; M. Peris-Ortiz, E. Vendrell, Technical University of Valencia, Valencia, Spain; C. Ferri-Ramirez (Eds.)

## Strategies in E-Business

### Positioning and Social Networking in Online Markets

In this volume, the authors apply insights from a variety of perspectives to explore the alignment among strategy, organization design, process and human resource management, and e-business practices on developing successful social networking programs—with particular regard to applying such initiatives against the backdrop of the global financial crisis and challenges to traditional business models. Showcasing in-depth case studies, the authors present emerging approaches to analyze the impact of investment in social networking sites, aligning internal resources, and measuring effects on positioning, branding, and new business creation. The fact that a growing proportion of the world[...]

### Features

In this volume, the authors apply insights from a variety of perspectives to explore the alignment among strategy, organization design, process and human resource management, and e-business practices on developing successful social networking programs—with particular regard to applying such initiatives against the backdrop of the global financial crisis and challenges to traditional business models. [...]

### Contents

Positioning in Online Social Networks Through QDQ Media: An Opportunity for Spanish SMES?.- Modeling the Influence of eWOM on Loyalty Behaviour in Social Network Sites.- Crowdsourcing as a Competitive Advantage for New Business Models.- Analyzing a Successful Incubator Business Model: The Case of Barcelona Activa.- Website Effectiveness for Tourism Accommodation Companies.- Gender in the Elderly Internet Users.- Search Engine of Optimization (SEO) and Ethical Leadership Strategies.- Search Engine Ranking: A SEO Strategy.- The Integration of Social Networks in the Competitiveness of[...]

### Fields of interest

Business Strategy/Leadership; e-commerce / e-business; Marketing

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-8183-6](http://www.springer.com/978-1-4614-8183-6)

### Hardcover

2014. VI, 165 p. 19 illus., 16 illus. in color.  
ISBN 978-1-4614-8183-6

usually dispatched within 3 to 5 business days  
October 31, 2013

N. Marakkath, Tata Institute of Social Sciences, Mumbai, India

## Sustainability of Indian Microfinance Institutions

### A Mixed Methods Approach

Although 'doing good' is our innate nature, we often get lost in the complexities and view goodness as a distant dream. Making this dream of goodness a reality is often thwarted by thoughts surrounding sustainability. Thus, all good initiatives require a focus on sustainability and this has become one of the greatest and most formidable challenges faced by any social enterprise. The book documents the understanding of the sustainability of one of the most celebrated forms of social enterprise of our times — Microfinance Institutions (MFIs) gained through a mixed-methods research investigation. It attempts to answer pertinent questions such as: What are the determinant and discriminating[...]

### Features

For any practicing social entrepreneur, building a sustainable organization that stands the test of time remains a formidable challenge. Using a mixed-methods research approach, this book investigates, specifically in the Indian context, the concept of sustainability in one of the most celebrated form of social enterprises of our times — Microfinance Institutions (MFIs). What are the determinants and [...]

### Contents

1: Introduction.- 2: Literature Review.- 3: Research Objectives and Design.- 4: Quantitative Phase: Identification of Factors Affecting and Discriminating Sustainability.- 5: Intermediate Participant Selection Phase: Assessment of Efficiency and Sustainability.- 6: Qualitative Phase: Management of Factors Affecting and Discriminating Sustainability.- 7: Dangers in Mismanaging the Factors Affecting and Discriminating Sustainability: An Exploration into Indian Microfinance Crisis.- 8: Summary of Findings, Implications and Conclusion.- Appendices.- A1: Operational Definition and[...]

### Fields of interest

Finance / Banking; Financial Economics; Development Economics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-81-322-1628-5](http://www.springer.com/978-81-322-1628-5)

### Hardcover

2014. XIV, 184 p. 33 illus., 3 illus. in color. (India Studies in Business and Economics)  
ISBN 978-81-322-1628-5

Due: November 30, 2013

A. Del Bo, Politecnico di Milano, Milan, Italy; D.F. Bignami, Fondazione Politecnico di Milano, Milan, Germany (Eds.)

## Sustainable Social, Economic and Environmental Revitalization in Multan City

### A Multidisciplinary Italian–Pakistani Project

This book describes the initial activities undertaken within an exciting multidisciplinary project to achieve sustainable social, economic, and environmental revitalization in the historic core of Multan City, Pakistan. The project is managed by Fondazione Politecnico di Milano within the framework of the "Pakistan-Italian Debt for Development Swap Agreement" and has five components: a livelihood improvement program, a living conditions improvement program, revitalization of physical assets, establishment of a Pakistan-Italian resource centre at Multan, and an Italian collaboration program for training and capacity building. All aspects are covered in this book, which provides a[...]

### Features

This book describes the initial activities undertaken within an exciting multidisciplinary project to achieve sustainable social, economic, and environmental revitalization in the historic core of Multan City, Pakistan. The project is managed by Fondazione Politecnico di Milano within the framework of the "Pakistan-Italian Debt for Development Swap Agreement" and has five components: a livelihood improvement [...]

### Contents

From the Contents: Studies and documentation on tourism, mapping of historical hotspot in Multan Walled City.- Microcredit system for building rehabilitation and strengthening arts and crafts.- Strategic analysis on the Multan handicrafts.- Economic fundamentals to create Italian-pakistani entrepreneurial relationships.

### Fields of interest

Development Economics; Civil Engineering; Sustainable Development; Building Types and Functions; Energy Efficiency (incl. Buildings); Atmospheric Protection / Air Quality Control / Air Pollution

### Target groups

Professional/practitioner

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02116-4](http://www.springer.com/978-3-319-02116-4)

### Hardcover

2014. X, 290 p. 50 illus. (Research for Development)  
ISBN 978-3-319-02116-4

Due: December 31, 2013

V. Dayal, Institute of Economic Growth, Delhi, India

## The Environment in Economics and Development

### Pluralist Extensions of Core Economic Models

This brief views the environment through diverse lenses – those of standard economics, institutional economics, political science, environmental science and ecology. Chapter 2 discusses diverse theoretical and statistical models – constrained optimization models, game theory, differential equations, and statistical models for causal inference – in a simple manner. Developing countries have certain distinct environmental problems – traditional pollution and traditional dependence on the commons. While chapters 3 and 4 discuss these specific problems, statistical graphs of the World Development Indicators explore the macro-context of developing countries in chapter 1. Chapter 5 examines[...]

### Features

This brief views the environment through diverse lenses – those of standard economics, institutional economics, political science, environmental science and ecology. Chapter 2 discusses diverse theoretical and statistical models – constrained optimization models, game theory, differential equations, and statistical models for causal inference – in a simple manner. Developing countries have certain distinct [...]

### Contents

Chapter 1: Context and overview of environment and development economics.- Chapter 2: Models and frameworks.- Chapter 3: Traditional and modern pollution.- Chapter 4: Livelihoods and the Commons.- Chapter 5: Complex Ecology.- Chapter 6: Global public goods.- Chapter 7: Sustainable development and institutions.

### Fields of interest

Environmental Economics; Development Economics; Ecology; Sustainable Development

### Target groups

Research

### Type of publication

Brief

More on [www.springer.com/978-81-322-1670-4](http://www.springer.com/978-81-322-1670-4)

### Softcover

2014. VII, 106 p. 54 illus. (SpringerBriefs in Economics) ISBN 978-81-322-1670-4

**Due: December 31, 2013**

E.G. Tsionas

## The Euro and International Financial Stability

As a result of the financial crisis, the weaknesses of the Eurozone, including the public debt crisis, materialized in severe depressions in certain of its country members. In this monograph, the author analyzes structural weaknesses of the Eurozone and argues that they can be traced to (i) institutional differences, (ii) differences in the economic structures, (iii) the fundamental inability of European Bureaucracy to deal with crises, and (iv) the extreme rigidity of markets which prevents a general equilibrium in product and credit markets. He concludes that whether the Eurozone is sustainable, depends on future monetary and credit policies, and discusses the implications of[...]

### Features

As a result of the financial crisis, the weaknesses of the Eurozone, including the public debt crisis, materialized in severe depressions in certain of its country members. In this monograph, the author analyzes structural weaknesses of the Eurozone and argues that they can be traced to (i) institutional differences, (ii) differences in the economic structures, (iii) the fundamental inability of European [...]

### Contents

1 Introduction.- 2 What Went Wrong With the Euro?.- 3 Public Debt: Introductory Remarks.- 4 Was the Eurozone an Acceptable Currency Union?.- 5 Preconditions of a Monetary Union.- 6 What Was the Theory Behind the Formation of EMU?.- 7 Will the Eurozone Dissolve Into Its Constituents?.- 8 Can There Be an Efficient Dissolution of a Monetary Union?.- 9 Complete Fiscal Freedom in the Transition Period?.- 10 Understanding Crises and Recessions.- 11 Will Bailouts Lead to a Dissolution of the Euro?.- 12 On the Destabilizing Effects of Bailouts.- 13 On Sound Money and Credit Conditions.- 14 The[...]

### Fields of interest

Macroeconomics / Monetary Economics; Public Finance & Economics; European Integration

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01170-7](http://www.springer.com/978-3-319-01170-7)

### Hardcover

2014. IX, 295 p. 5 illus. (Financial and Monetary Policy Studies, Vol. 37) ISBN 978-3-319-01170-7

**Due: October 31, 2013**

S. Sushil, Indian Institute of Technology, New Delhi, India; E.A. Stohr, Stevens Institute of Technology, Hoboken, USA (Eds.)

## The Flexible Enterprise

The need for enterprise flexibility in an era of rapidly advancing technology, increasing competition, and globalization, is apparent. Flexibility can be thought of as an ability of the enterprise to quickly and efficiently respond to market changes and to bring new products and services quickly to the market place. Beyond this definition, a truly flexible enterprise should proactively change the market through its ability to create new and innovative products and services. The proposed book is intended to provide a conceptual framework of 'Flexible Enterprise' supported by researches/case applications in various types of flexibilities exhibited by a flexible enterprise. The selected[...]

### Features

The need for enterprise flexibility in an era of rapidly advancing technology, increasing competition, and globalization, is apparent. Flexibility can be thought of as an ability of the enterprise to quickly and efficiently respond to market changes and to bring new products and services quickly to the market place. Beyond this definition, a truly flexible enterprise should proactively change the market [...]

### Contents

Part I Enterprise and Strategic Flexibility.- Chapter 1: The Concept of Flexible Enterprise.- Chapter 2: Creating Enterprise Flexibility through Service Oriented Architecture.- Chapter 3: Defining Strategic Flexibility.- Chapter 4: Flexible Strategy Framework for Managing Continuity and Change in E-government.- Chapter 5: Government Regulator's Role in Managing Competition through Flexibility in Telecom Industry of India: A Policy Perspective.- Chapter 6: Theoretical Roots of Flexible Strategy Gamecard: An Evolving Strategic Performance Management Framework.- Part II: Organizational[...]

### Fields of interest

Organization / Planning; Business Information Systems; Business Strategy/Leadership; Project Management; Technology Management

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-81-322-1559-2](http://www.springer.com/978-81-322-1559-2)

### Hardcover

2014. XV, 355 p. 91 illus., 69 illus. in color. (Flexible Systems Management) ISBN 978-81-322-1559-2

**Due: October 31, 2013**

L.D. Taylor

## The Internal Structure of U. S. Consumption Expenditures

Usually, when we consider the information that is given in a household budget survey, we do so in terms of expenditures for different goods and services and how these relate to income, prices, and socio demographic factors such as age, family size, and education. Allocation of expenditures amongst different categories of consumption is seen as being determined by tastes and preferences acting in conjunction with a constraint imposed by prices and income. The parameters thus obtained are obviously useful in analyzing the impact on consumption resulting from changes in income and prices (should the latter be available), but income and price elasticities, in themselves, say little about[...]

### Features

Usually, when we consider the information that is given in a household budget survey, we do so in terms of expenditures for different goods and services and how these relate to income, prices, and socio demographic factors such as age, family size, and education. Allocation of expenditures amongst different categories of consumption is seen as being determined by tastes and preferences acting in conjunction [...]

### Contents

Preface.- A Different Way of Looking at Consumption Behavior.- Stability of The Internal Structure of Consumption Expenditures.- Stability of The Internal Structure of Consumption Expenditure II: Interpretation and Further Analyses.- Effects of A Change In Expenditures For One Good on Expenditures of Other Goods.- Background, Interpretation, and Speculation.- A Brief Look at Intra-Budget Coefficients by Quintiles of Consumption Expenditure.- Estimation of Price Elasticities With Data From The BLS Consumer Expenditure Surveys.- Summary, Conclusions, and Final Exercises.- Appendix 1 Data[...]

### Fields of interest

Economics; Economic Growth; Macroeconomics / Monetary Economics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02224-6](http://www.springer.com/978-3-319-02224-6)

### Hardcover

2014. VIII, 198 p. 70 illus., 69 illus. in color. ISBN 978-3-319-02224-6

**Due: October 31, 2013**

H.I. Meinhardt, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

## The Pre-Kernel as a Tractable Solution for Cooperative Games

### An Exercise in Algorithmic Game Theory

This present book provides an alternative approach to study the pre-kernel solution of transferable utility games based on a generalized conjugation theory from convex analysis. Although the pre-kernel solution possesses an appealing axiomatic foundation that lets one consider this solution concept as a standard of fairness, the pre-kernel and its related solutions are regarded as obscure and too technically complex to be treated as a real alternative to the Shapley value. Comprehensible and efficient computability is widely regarded as a desirable feature to qualify a solution concept apart from its axiomatic foundation as a standard of fairness. We review and then improve an[...]

### Features

This present book provides an alternative approach to study the pre-kernel solution of transferable utility games based on a generalized conjugation theory from convex analysis. Although the pre-kernel solution possesses an appealing axiomatic foundation that lets one consider this solution concept as a standard of fairness, the pre-kernel and its related solutions are regarded as obscure and too [...]

### Contents

Introduction.- Some Solution Schemes and Game Properties.- The Shapley Value and (Pre-Kernel) as a Fairness Concept.- Fair Division in Cournot Markets.- Some Preliminary Results.- A Pre-Kernel Characterization and Orthogonal Projection.- Characterization of the Pre-Kernel by Solution Sets.- Algorithms for Computing the Pre-Kernel.- An Upper Dimension Bound of the Pre-Kernel.- Concluding Remarks.

### Fields of interest

Game Theory / Mathematical Methods; Game Theory, Economics, Social and Behav. Sciences; Economic Theory; Mathematical Applications in Computer Science

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39548-2](http://www.springer.com/978-3-642-39548-2)

### Hardcover

2014. XXXIII, 242 p. 8 illus., 4 illus. in color. (Theory and Decision Library C, Vol. 45) ISBN 978-3-642-39548-2

**Due: October 31, 2013**

G. Buenstorf, University of Kassel, Kassel, Germany; U. Cantner, Universität Jena, Jena, Germany; H. Hanusch, Universität Augsburg, Augsburg, Germany; M. Hutter, Social Science Research Center, Berlin, Germany; H.-W. Lorenz, Universität Jena, Jena, Germany; F. Rahmeyer, Universität Augsburg, Augsburg, Germany (Eds.)

## The Two Sides of Innovation

### Creation and Destruction in the Evolution of Capitalist Economies

This volume is devoted to innovation with a special focus on its two sides, namely creation and destruction, and on its role in the evolution of capitalist economies. The first part of the book looks at innovation and its effects on economic performance, addressing issues of motives, behavioral rules under uncertainty, actor properties, and technology characteristics. The second part concentrates on potential consequences of innovative activities, in particular structural change, the "innovation-mediated" effect of skill-oriented policies on regional performance, the destructive effects of innovation activities, and the question whether novelty is always good. The role of innovation[...]

### Features

This volume is devoted to innovation with a special focus on its two sides, namely creation and destruction, and on its role in the evolution of capitalist economies. The first part of the book looks at innovation and its effects on economic performance, addressing issues of motives, behavioral rules under uncertainty, actor properties, and technology characteristics. The second part concentrates on potential [...]

### Contents

Innovation: Conditions to Successfully Create Novelty for Economic Development.- Innovation: Induced Structural Change, Coping and Normative Assessment.- Innovation and the Evolution of Capitalism.

### Fields of interest

Economic Growth; R & D / Technology Policy; Technology Management; Industrial Organization; Regional Science; Complexity

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-01495-1](http://www.springer.com/978-3-319-01495-1)

### Hardcover

2014. X, 180 p. 4 illus. in color. (Economic Complexity and Evolution) ISBN 978-3-319-01495-1

**Due: November 30, 2013**

J. Sengupta, University of California, Santa Barbara, Santa Barbara., USA

## Theory of Innovation

### A New Paradigm of Growth

The current economic theory of innovation mainly analyses the technology factor and its impact on economic growth. In today's world, growth in information technology and knowledge of new ideas has altered the business paradigm dramatically. Modern economies have undergone a dynamic shift from material manufacturing to a new information technology model with research and development (R&D) and human capital. Through information and communications technology efficient information usage has achieved substantial productivity gains through learning by doing and incremental innovations. The present volume discusses this new paradigm in terms of both theory and industry applications.[...]

### Features

The current economic theory of innovation mainly analyses the technology factor and its impact on economic growth. In today's world, growth in information technology and knowledge of new ideas has altered the business paradigm dramatically. Modern economies have undergone a dynamic shift from material manufacturing to a new information technology model with research and development (R&D) and human capital. [...]

### Contents

Contents.- Theory of Innovation.- Innovation Models.- Schumpeterian Innovation.- Endogenous Innovation.- Innovation Diversity: Industry Applications.- Innovation Challenges.- Managing Innovation.- References.

### Fields of interest

Economic Growth; R & D / Technology Policy; Economic Theory

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02182-9](http://www.springer.com/978-3-319-02182-9)

### Hardcover

2014. X, 154 p.  
ISBN 978-3-319-02182-9

**Due: October 31, 2013**

A. Spiess, GCC Network for Drylands Research, Hamburg, Germany; F. Al-Mubarak, Alfaisal University, Riyadh, Saudi Arabia; A.S. Weber, Weill Cornell Medical College in Qatar, Doha, Qatar (Eds.)

## Tourism Development in the GCC States

### Reconciling Economic Growth, Conservation and Sustainable Development

Tourism is one of the world's largest as well as fastest growing industries and the Gulf Cooperation Council (GCC) member states are expected to be increasingly important engines of such growth, and tourism promotion is often considered an integral element of their economic strategies. The sector is generally publicized as a vital source of employment, revenue, foreign exchange benefits, public infrastructure, diversification and inducement in reviving national pride. Nevertheless tourism as a catalyst for economic development can be a controversial device. While certain short term economic benefits clearly arise from an expanding tourism industry in the Gulf economies, its[...]

### Features

Tourism is one of the world's largest as well as fastest growing industries and the Gulf Cooperation Council (GCC) member states are expected to be increasingly important engines of such growth, and tourism promotion is often considered an integral element of their economic strategies. The sector is generally publicized as a vital source of employment, revenue, foreign exchange benefits, [...]

### Contents

1. The Price of Branding: tourism and the elusive search for "culture" among Emiratis in Dubai, UAE.- 2.State-society relations, economic change, and tourism in the GCC states.- 3. Who are We? Tourism and National Identity in Jordan and Qatar.- 4. Planning for and Management of Sustainable Tourism within Environmentally Sensitive Areas (ESAs) in Saudi Arabia.- 5. Sustainability Questions on GCC Investments in Sports: A Critical assessment of UAE and Qatari Football.- 6. Hidden Treasures: The Potential of Geotourism in Saudi Arabia.- 7. National Tourism Organizations in the Gulf[...]

### Fields of interest

International Economics; Emerging Markets/Globalization; International Relations

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-7452-4](http://www.springer.com/978-1-4614-7452-4)

### Hardcover

2014. Approx. 300 p.  
ISBN 978-1-4614-7452-4

**Due: December 27, 2013**

A. Washburn, Naval Postgraduate School, Monterey, USA

## Two-Person Zero-Sum Games

Two-person zero-sum game theory deals with situations that are perfectly competitive—there are exactly two decision makers for whom there is no possibility of cooperation or compromise. It is the most fundamental part of game theory, and the part most commonly applied. There are diverse applications to military battles, sports, parlor games, economics and politics. The theory was born in World War II, and has by now matured into a significant and tractable body of knowledge about competitive decision making. The advent of modern, powerful computers has enabled the solution of many games that were once beyond computational reach. Two-Person Zero-Sum Games, 4th Ed. offers an up-to-date[...]

### Features

Two-person zero-sum game theory deals with situations that are perfectly competitive—there are exactly two decision makers for whom there is no possibility of cooperation or compromise. It is the most fundamental part of game theory, and the part most commonly applied. There are diverse applications to military battles, sports, parlor games, economics and politics. The theory was born in World War II, and [...]

### Contents

Single Person Background.- Maxmin Versus Minmax.- Matrix Games.- Markov (Multistage) Games.- Games with a Continuum of Strategies.- Blotto Games.- Network Interdiction.- Search Games.- Miscellaneous Games.

### Fields of interest

Operation Research / Decision Theory; Probability Theory and Stochastic Processes; Operations Research, Mathematical Programming

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-9049-4](http://www.springer.com/978-1-4614-9049-4)

### Hardcover

2014. XII, 194 p. 56 illus., 8 illus. in color. With online files/update. (International Series in Operations Research & Management Science, Vol. 201)  
ISBN 978-1-4614-9049-4

**Due: November 30, 2013**

K.S. Sridhar, Public Affairs Centre, Bangalore, India; G. Wan, Asian Development Bank, Manila, Philippines (Eds.)

## Urbanization in Asia

### Governance, Infrastructure and the Environment

This work focuses on urban governance in the developing world, its aim being to bring a holistic perspective to the debate on urban governance in Asia and around the globe. It has been divided into three sections: The first section is on rural interventions as they influence urbanization and its problems/solutions. The second focuses on urban governance, infrastructure programs, service delivery reforms and their evaluation. The third and final section focuses on urbanization and the environment. In the first section, we present evaluations of India's rural programs including the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), and of India's Total Sanitation Campaign.[...]

### Features

This work focuses on urban governance in the developing world, its aim being to bring a holistic perspective to the debate on urban governance in Asia and around the globe. It has been divided into three sections: The first section is on rural interventions as they influence urbanization and its problems/solutions. The second focuses on urban governance, infrastructure programs, service delivery reforms and [...]

### Contents

Introduction.- Implementation of MGNREGA: A Study of two Gram Panchayats in Jhalawar, Rajasthan.- "Total Sanitation Campaign" intervention for a semi-urban village through 'Public-People-Private' partnership.- Making the Connection between Informal Self-employment and Temporary Migration: Lessons from the Cycle Rickshaw Sector.- Benchmarking cities: Evidence from India.- Central and state urban infrastructure programs in Karnataka: What do we learn?.- Risk allocation in concession agreements for PPP road projects in India.- Value of Travel Time Saved in Modal Shift from Bus to Metro[...]

### Fields of interest

Development Economics; Public Finance & Economics; Environmental Law / Policy / Ecojustice; Environmental Economics; Regional Science

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-81-322-1637-7](http://www.springer.com/978-81-322-1637-7)

### Hardcover

2014. I, 279 p. 90 illus.  
ISBN 978-81-322-1637-7

**Due: November 30, 2013**

T.L. Cosslett, P.D. Cosslett

## Water Resources and Food Security in the Vietnam Mekong Delta

The Mekong River has been a main source of conquest, conflict, and cooperation in the Southeast Asian region. Much has been written on the vital and critical importance of the Mekong River fresh water to the sustainable economic development of the Mekong Delta. This book selects the Mekong Delta as a case study of regional cooperation for water and food security for not only for Vietnam but also for the world in a new century of global economy. It focuses not only on the Mekong Delta as an integral part of the River but also on Can Tho City and its 12 provinces that produce over 50 percent of the country's rice output and 60 percent of total fishery output. The book takes a micro[...]

### Features

The Mekong River has been a main source of conquest, conflict, and cooperation in the Southeast Asian region. Much has been written on the vital and critical importance of the Mekong River fresh water to the sustainable economic development of the Mekong Delta. This book selects the Mekong Delta as a case study of regional cooperation for water and food security for not only for Vietnam but also for the [...]

### Contents

Introduction.- PART I.- Mekong Delta Water Resources and Food Security.- Mekong Delta of Vietnam. Water resources for rice culture and aquaculture.- Major threats to the Mekong Delta.- PART II.- Mekong River Regional Cooperation.- The Mekong Project.- The Mekong Committee (1957-1975).- The Mekong River Commission (1995-to present).- Conclusion.

### Fields of interest

Environmental Economics; Agricultural Economics; Development Economics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-02197-3](http://www.springer.com/978-3-319-02197-3)

### Hardcover

2014. XVI, 180 p. 5 illus. in color. (Natural Resource Management and Policy, Vol. 44)  
ISBN 978-3-319-02197-3

**Due: October 31, 2013**

D. Eißel, Universität Gießen, Gießen, Germany; E. Rokicka, J. Leaman, Loughborough University, Loughborough, United Kingdom (Eds.)

## Welfare State at Risk

### Rising Inequality in Europe

This book investigates the causes of inequalities that have developed in the European Union, analyzes their social and economic consequences, and assesses the political measures taken to address these issues – also on the basis of public survey results. The detailed analyses presented focus on structures of inequality to be found in the areas education, culture, labor market, Internet access, families and children, gender, and the regions of the EU. The book also critically examines both the legal framework conditions and financial / taxation policy as instruments that can be used to either produce or combat inequality.

### Features

This book investigates the causes of inequalities that have developed in the European Union, analyzes their social and economic consequences, and assesses the political measures taken to address these issues – also on the basis of public survey results. The detailed analyses presented focus on structures of inequality to be found in the areas education, culture, labor market, Internet access, families [...]

### Contents

1 Introduction.- 2 The Concept of "Quality of Life" in the Context of Economic Performance and Social Progress.- 3 Inequality and the Role of Redistributive Policy.- 4 Economic Aspects of Fighting Inequality.- 5 Market Distribution, Fiscal Distribution and Inequality: A Case Study of Britain.- 6 The Nordic Model and Social Inequalities.- 7 Social Inequalities of Families in Europe.- 8 Transition Into Adulthood, Life Course, Inequalities and Social Change.- 9 Unsuccessful in Education - Early School Leaving.- 10 Digital Inequality in Physical and Skills Access Among European[...]

### Fields of interest

Public Finance & Economics; Political Economy

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-01480-7](http://www.springer.com/978-3-319-01480-7)

### Hardcover

2014. VI, 229 p. 43 illus., 2 illus. in color.  
ISBN 978-3-319-01480-7

**Due: October 31, 2013**

## Mathematics

J.B. Conway, The George Washington University, Washington, USA

### A Course in Point Set Topology

This textbook in point set topology is aimed at an upper-undergraduate audience. Its gentle pace will be useful to students who are still learning to write proofs. Prerequisites include calculus and at least one semester of analysis, where the student has been properly exposed to the ideas of basic set theory such as subsets, unions, intersections, and functions, as well as convergence and other topological notions in the real line. Appendices are included to bridge the gap between this new material and material found in an analysis course. Metric spaces are one of the more prevalent topological spaces used in other areas and are therefore introduced in the first chapter and [...]

#### Features

This textbook in point set topology is aimed at an upper-undergraduate audience. Its gentle pace will be useful to students who are still learning to write proofs. Prerequisites include calculus and at least one semester of analysis, where the student has been properly exposed to the ideas of basic set theory such as subsets, unions, intersections, and functions, as well as convergence and other topological [...]

#### Contents

Metric Spaces.- Topological Spaces.- Continuous Real-Valued Functions.- Appendix.- Bibliography.- Terms.- Symbols.

#### Fields of interest

Topology

#### Target groups

Upper undergraduate

#### Type of publication

Undergraduate textbook

More on [www.springer.com/978-3-319-02367-0](http://www.springer.com/978-3-319-02367-0)

#### Hardcover

2014. XV, 128 p. (Undergraduate Texts in Mathematics)  
ISBN 978-3-319-02367-0

**Due: November 30, 2013**

N. Lerner, Université Pierre et Marie Curie, Paris, France

### A Course on Integration Theory

Including more than 150 exercises with detailed answers

This textbook provides a detailed treatment of abstract integration theory, construction of the Lebesgue measure via the Riesz-Markov Theorem and also via the Carathéodory Theorem. It also includes some elementary properties of Hausdorff measures as well as the basic properties of spaces of integrable functions and standard theorems on integrals depending on a parameter. Integration on a product space, change of variables formulas as well as the construction and study of classical Cantor sets are treated in detail. Classical convolution inequalities, such as Young's inequality and Hardy-Littlewood-Sobolev inequality are proven. The Radon-Nikodym theorem, notions of harmonic analysis, [...]

#### Features

This textbook provides a detailed treatment of abstract integration theory, construction of the Lebesgue measure via the Riesz-Markov Theorem and also via the Carathéodory Theorem. It also includes some elementary properties of Hausdorff measures as well as the basic properties of spaces of integrable functions and standard theorems on integrals depending on a parameter. Integration on a product space, change [...]

#### Contents

1 Introduction.- 2 General theory of integration.- 3 Construction of the Lebesgue measure on  $\mathbb{R}^d$ .- 4 Spaces of integrable functions.- 5 Integration on a product space.- 6 Diffeomorphisms of open subsets of  $\mathbb{R}^d$  and integration.- 7 Convolution.- 8 Complex measures.- 9 Harmonic analysis.- 10 Classical inequalities.

#### Fields of interest

Real Functions; Measure and Integration

#### Target groups

Graduate

#### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-0348-0693-0](http://www.springer.com/978-3-0348-0693-0)

#### Softcover

2013. Approx. 450 p.  
ISBN 978-3-0348-0693-0

**Due: December 18, 2013**

F. Borceux

### A Differential Approach to Geometry

Geometric Trilogie III

This book presents the classical theory of curves in the plane and three-dimensional space, and the classical theory of surfaces in three-dimensional space. It pays particular attention to the historical development of the theory and the preliminary approaches that support contemporary geometrical notions. It includes a chapter that lists a very wide scope of plane curves and their properties. The book approaches the threshold of algebraic topology, providing an integrated presentation fully accessible to undergraduate-level students. At the end of the 17th century, Newton and Leibniz developed differential calculus, thus making available the very wide range of differentiable [...]

#### Features

This book presents the classical theory of curves in the plane and three-dimensional space, and the classical theory of surfaces in three-dimensional space. It pays particular attention to the historical development of the theory and the preliminary approaches that support contemporary geometrical notions. It includes a chapter that lists a very wide scope of plane curves and their properties. The book [...]

#### Contents

Introduction.- Preface.- 1.The Genesis of Differential Methods.- 2.Plane Curves.- 3.A Museum of Curves.- 4.Skew Curves.- 5.Local Theory of Surfaces.- 6.Towards Riemannian Geometry.- 7.Elements of Global Theory of Surfaces.- Appendices: A.Topology.- B.Differential Equations.- Index.- Bibliography.

#### Fields of interest

Geometry; Differential Geometry; History of Mathematics

#### Target groups

Graduate

#### Type of publication

Monograph

More on [www.springer.com/978-3-319-01735-8](http://www.springer.com/978-3-319-01735-8)

#### Hardcover

2014. XIV, 466 p. 159 illus.  
ISBN 978-3-319-01735-8

**Due: November 30, 2013**

R.M. Corless, University of Western Ontario, London, Canada; N. Fillion, University of Western Ontario, Burnaby, Canada

## A Graduate Introduction to Numerical Methods

From the Viewpoint of Backward Error Analysis

This book provides an extensive introduction to numerical computing from the viewpoint of backward error analysis. The intended audience includes students and researchers in science, engineering and mathematics. The approach taken is somewhat informal owing to the wide variety of backgrounds of the readers, but the central ideas of backward error and sensitivity (conditioning) are systematically emphasized. The book is divided into four parts: Part I provides the background preliminaries including floating-point arithmetic, polynomials and computer evaluation of functions; Part II covers numerical linear algebra; Part III covers interpolation, the FFT and quadrature; and Part IV [...]

### Features

This book provides an extensive introduction to numerical computing from the viewpoint of backward error analysis. The intended audience includes students and researchers in science, engineering and mathematics. The approach taken is somewhat informal owing to the wide variety of backgrounds of the readers, but the central ideas of backward error and sensitivity (conditioning) are systematically emphasized. [...]

### Contents

Computer Arithmetic & Fundamental Concepts of Computation.- Polynomials and Series.- Rootfinding and Function Evaluation.- Solving  $Ax = b$ .- Solving  $Ax = -I x$ .- Structured Linear Systems.- Iterative Methods.- Polynomial and Rational Interpolation.- The Discrete Fourier Transform.- Numerical Integration.- Numerical Differentiation and Finite Differences.- Numerical Solution of ODEs.- Numerical Methods for ODEs.- Numerical Solutions of Boundary Value Problems.- Numerical Solution of Delay DEs.- Numerical Solution of PDEs.

### Fields of interest

Computational Mathematics and Numerical Analysis; Computational Science and Engineering; Numerical Analysis

**Target groups**  
Graduate

**Type of publication**  
Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8452-3](http://www.springer.com/978-1-4614-8452-3)

### Hardcover

2014. VIII, 168 p. 188 illus., 7 illus. in color.  
ISBN 978-1-4614-8452-3

**Due: October 31, 2013**

Y. Fedorov, Universitat Politècnica de Catalunya, Barcelona, Spain; V.V. Kozlov, Lomonosov State Univ. Moskva, Moscow, Russia

## A Memoir on Integrable Systems

Integrable dynamical systems are usually associated with Hamiltonian ones. The present book considers the bigger class of systems which are not (at least a priori) Hamiltonian but possess tensor invariants, in particular, an invariant measure. Such systems are as rare as Hamiltonian ones that have additional first integrals and therefore must be considered as number one candidates for integrable problems. Several integrability theorems related to the existence of tensor invariants are formulated. The authors display the geometrical background of some classical and new hierarchies of integrable systems and give their explicit solution in terms of theta-functions. Most of the results [...]

### Features

Integrable dynamical systems are usually associated with Hamiltonian ones. The present book considers the bigger class of systems which are not (at least a priori) Hamiltonian but possess tensor invariants, in particular, an invariant measure. Such systems are as rare as Hamiltonian ones that have additional first integrals and therefore must be considered as number one candidates for integrable problems. [...]

### Contents

Classical Mechanics and Lie Groups.- Systems With an Invariant Measure.- Integrable Systems, Lax Pairs and Confocal Quadrics.- Explicit Solutions.- References.- Index.

### Fields of interest

Analysis; Global Analysis and Analysis on Manifolds; Topological Groups, Lie Groups; Algebraic Geometry; Theoretical, Mathematical and Computational Physics

**Target groups**  
Research

**Type of publication**  
Monograph

More on [www.springer.com/978-3-540-59000-2](http://www.springer.com/978-3-540-59000-2)

### Hardcover

2013. Approx. 280 p. 40 illus. (Springer Monographs in Mathematics)  
ISBN 978-3-540-59000-2

**Due: August 31, 2013**

F. Cakoni, University of Delaware, Newark, USA; D. Colton, University of Delaware, Newark, USA

## A Qualitative Approach to Inverse Scattering Theory

Inverse scattering theory is an important area of applied mathematics due to its central role in such areas as medical imaging, nondestructive testing and geophysical exploration. Until recently all existing algorithms for solving inverse scattering problems were based on using either a weak scattering assumption or on the use of nonlinear optimization techniques. The limitations of these methods have led in recent years to an alternative approach to the inverse scattering problem which avoids the incorrect model assumptions inherent in the use of weak scattering approximations as well as the strong a priori information needed in order to implement nonlinear optimization techniques. [...]

### Features

Inverse scattering theory is an important area of applied mathematics due to its central role in such areas as medical imaging, nondestructive testing and geophysical exploration. Until recently all existing algorithms for solving inverse scattering problems were based on using either a weak scattering assumption or on the use of nonlinear optimization techniques. The limitations of these methods have [...]

### Contents

1. Functional Analysis and Sobolev Spaces.- 2. Ill-Posed Problems.- 3. Scattering by Imperfect Conductors.- 4. Inverse Scattering Problems for Imperfect Conductors.- 5. Scattering by Orthotropic Media.- 6. Inverse Scattering Problems for Orthotropic Media.- 7. Factorization Methods.- 8. Mixed Boundary Value Problems.- 9. Inverse Spectral Problems for Transmission Eigenvalues.- 10. A Glimpse at Maxwell's Equations.

### Fields of interest

Partial Differential Equations; Electrical Engineering; Theoretical, Mathematical and Computational Physics; Fourier Analysis

**Target groups**  
Graduate

**Type of publication**  
Monograph

More on [www.springer.com/978-1-4614-8826-2](http://www.springer.com/978-1-4614-8826-2)

### Hardcover

2014. VIII, 287 p. 15 illus. (Applied Mathematical Sciences, Vol. 188)  
ISBN 978-1-4614-8826-2

**Due: November 30, 2013**

S. Ahmad, University of Texas San Antonio, San Antonio, USA; A. Ambrosetti, SISSA, Trieste, Italy

## A textbook on Ordinary Differential Equations

The book is a primer of the theory of Ordinary Differential Equations. Each chapter is completed by a broad set of exercises; the reader will also find a set of solutions of selected exercises. The book contains many interesting examples as well (like the equations for the electric circuits, the pendulum equation, the logistic equation, the Lotka-Volterra system, and many other) which introduce the reader to some interesting aspects of the theory and its applications. The work is mainly addressed to students of Mathematics, Physics, Engineering, Statistics, Computer Sciences, with knowledge of Calculus and Linear Algebra, and contains more advanced topics for further developments.[...]

### Features

The book is a primer of the theory of Ordinary Differential Equations. Each chapter is completed by a broad set of exercises; the reader will also find a set of solutions of selected exercises. The book contains many interesting examples as well (like the equations for the electric circuits, the pendulum equation, the logistic equation, the Lotka-Volterra system, and many other) which introduce the reader to [...]

### Contents

1 First order linear differential equations.- 2 Theory of first order differential equations.- 3 First order nonlinear differential equations.- 4 Existence and uniqueness for systems and higher order equations.- 5 Second Order Equations.- 6 Higher Order Linear Equations.- 7 Systems of First Order Equations.- 8 Qualitative analysis of  $2 \times 2$  systems and nonlinear second order equations.- 9 Sturm Liouville eigenvalue theory.- 10 Solutions by infinite series and Bessel functions.- 11 Laplace transform.- 12 Stability Theory.- 13 Boundary Value problems.- Appendix A. Numerical methods.- Answers[...]

### Fields of interest

Ordinary Differential Equations; Analysis; Numerical Analysis; Applications of Mathematics

### Target groups

Lower undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-3-319-02128-7](http://www.springer.com/978-3-319-02128-7)

### Softcover

2014. Approx. 360 p. (La Matematica per il 3+2, Vol. 73)  
ISBN 978-3-319-02128-7

**Due: November 15, 2013**

F. Borceux

## An Algebraic Approach to Geometry

### Geometric Trilogy II

This is a unified treatment of the various algebraic approaches to geometric spaces. The study of algebraic curves in the complex projective plane is the natural link between linear geometry at an undergraduate level and algebraic geometry at a graduate level, and it is also an important topic in geometric applications, such as cryptography. 380 years ago, the work of Fermat and Descartes led us to study geometric problems using coordinates and equations. Today, this is the most popular way of handling geometrical problems. Linear algebra provides an efficient tool for studying all the first degree (lines, planes, ...) and second degree (ellipses, hyperboloids, ...) geometric figures.[...]

### Features

This is a unified treatment of the various algebraic approaches to geometric spaces. The study of algebraic curves in the complex projective plane is the natural link between linear geometry at an undergraduate level and algebraic geometry at a graduate level, and it is also an important topic in geometric applications, such as cryptography. 380 years ago, the work of Fermat and Descartes led us to [...]

### Contents

Introduction.- Preface.- 1.The Birth of Analytic Geometry.- 2.Affine Geometry.- 3.More on Real Affine Spaces.- 4.Euclidean Geometry.- 5.Hermitian Spaces.- 6.Projective Geometry.- 7.Algebraic Curves.- Appendices: A.Polynomials Over a Field.- B.Polynomials in Several Variables.- C.Homogenous Polynomials.- D.Resultants.- E.Symmetric Polynomials.- F.Complex Numbers.- G.Quadratic Forms.- H.Dual Spaces.- Index.- Bibliography.

### Fields of interest

Geometry; Projective Geometry; History of Mathematics

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01732-7](http://www.springer.com/978-3-319-01732-7)

### Hardcover

2014. XVI, 440 p. 118 illus.  
ISBN 978-3-319-01732-7

**Due: November 30, 2013**

F. Borceux

## An Axiomatic Approach to Geometry

### Geometric Trilogy I

Focusing methodologically on those historical aspects that are relevant to supporting intuition in axiomatic approaches to geometry, the book develops systematic and modern approaches to the three core aspects of axiomatic geometry: Euclidean, non-Euclidean and projective. Historically, axiomatic geometry marks the origin of formalized mathematical activity. It is in this discipline that most historically famous problems can be found, the solutions of which have led to various presently very active domains of research, especially in algebra. The recognition of the coherence of two-by-two contradictory axiomatic systems for geometry (like one single parallel, no parallel at all,[...])

### Features

Focusing methodologically on those historical aspects that are relevant to supporting intuition in axiomatic approaches to geometry, the book develops systematic and modern approaches to the three core aspects of axiomatic geometry: Euclidean, non-Euclidean and projective. Historically, axiomatic geometry marks the origin of formalized mathematical activity. It is in this discipline that most historically [...]

### Contents

Introduction.- Preface.- 1.The Prehellenic Antiquity.- 2.Some Pioneers of Greek Geometry.- 3.Euclid's Elements.- 4.Some Masters of Greek Geometry.- 5.Post-Hellenic Euclidean Geometry.- 6.Projective Geometry.- 7.Non-Euclidean Geometry.- 8.Hilbert's Axiomatics of the Plane.- Appendices: A.Constructibility.- B.The Three Classical Problems.- C.Regular Polygons.- Index.- Bibliography.

### Fields of interest

Geometry; History of Mathematics; Projective Geometry

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01729-7](http://www.springer.com/978-3-319-01729-7)

### Hardcover

2013. XIV, 440 p. 287 illus.  
ISBN 978-3-319-01729-7

**Due: October 31, 2013**

D.W. Stroock, Massachusetts Institute of Technology, Cambridge, USA

## An Introduction to Markov Processes

This book provides a rigorous but elementary introduction to the theory of Markov Processes on a countable state space. It should be accessible to students with a solid undergraduate background in mathematics, including students from engineering, economics, physics, and biology. Topics covered are: Doeblin's theory, general ergodic properties, and continuous time processes. Applications are dispersed throughout the book. In addition, a whole chapter is devoted to reversible processes and the use of their associated Dirichlet forms to estimate the rate of convergence to equilibrium. These results are then applied to the analysis of the Metropolis (a.k.a simulated annealing)[...]

### Features

This book provides a rigorous but elementary introduction to the theory of Markov Processes on a countable state space. It should be accessible to students with a solid undergraduate background in mathematics, including students from engineering, economics, physics, and biology. Topics covered are: Doeblin's theory, general ergodic properties, and continuous time processes. Applications are dispersed [...]

### Contents

Preface.- Random Walks, a Good Place to Begin.- Doeblin's Theory for Markov Chains.- Stationary Probabilities.- More about the Ergodic Theory of Markov Chains.- Markov Processes in Continuous Time.- Reversible Markov Processes.- A minimal Introduction to Measure Theory.- Notation.- References.- Index.

### Fields of interest

Probability Theory and Stochastic Processes; Dynamical Systems and Ergodic Theory

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-40522-8](http://www.springer.com/978-3-642-40522-8)

### Hardcover

2014. XX, 190 p. (Graduate Texts in Mathematics, Vol. 230)

ISBN 978-3-642-40522-8

**Due: November 30, 2013**

L. Elefteriadou

## An Introduction to Traffic Flow Theory

This text provides a comprehensive and concise treatment of the topic of traffic flow theory and includes several topics relevant to today's highway transportation system. It provides the fundamental principles of traffic flow theory as well as applications of those principles for evaluating specific types of facilities (freeways, intersections, etc.). Newer concepts of Intelligent transportation systems (ITS) and their potential impact on traffic flow are discussed. State-of-the-art in traffic flow research and microscopic traffic analysis and traffic simulation have significantly advanced and are also discussed in this text. Real world examples and useful problem sets complement[...]

### Features

This text provides a comprehensive and concise treatment of the topic of traffic flow theory and includes several topics relevant to today's highway transportation system. It provides the fundamental principles of traffic flow theory as well as applications of those principles for evaluating specific types of facilities (freeways, intersections, etc.). Newer concepts of Intelligent transportation systems [...]

### Contents

Introduction.- Part 1.- 1. Modeling the Motion of a Single Vehicle.- 2. Modeling Vehicle Interactions and the Movement of Groups of Vehicles.- Part 2.- 3. The Traffic Stream: Traffic Flow Performance Characteristics.- 4. Capacity.- 5. Traffic Operational Performance Measures.- Part 3.- 6. Analytical Models for Bottleneck and Queuing Evaluations.- 7. Simulation Modeling.- Part 4.- 8. Freeways.- 9. Signalized Intersections and Networks.- 10. Unsignalized Intersections.- 11. Two-Lane Highways.- Appendix A.- Appendix B.- Index.

### Fields of interest

Optimization; Civil Engineering

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8434-9](http://www.springer.com/978-1-4614-8434-9)

### Hardcover

2013. XX, 249 p. 97 illus., 79 illus. in color. (Springer Optimization and Its Applications, Vol. 84)

ISBN 978-1-4614-8434-9

**Due: October 31, 2013**

P.N. Natarajan, Ramakrishna Mission Vivekananda College, Chennai, India

## An Introduction to Ultrametric Summability Theory

Ultrametric analysis has emerged as an important branch of mathematics in recent years. This book presents, for the first time, a brief survey of the research to date in ultrametric summability theory, which is a fusion of a classical branch of mathematics (summability theory) with a modern branch of analysis (ultrametric analysis). Several mathematicians have contributed to summability theory as well as functional analysis. The book will appeal to both young researchers and more experienced mathematicians who are looking to explore new areas in analysis.

### Features

Ultrametric analysis has emerged as an important branch of mathematics in recent years. This book presents, for the first time, a brief survey of the research to date in ultrametric summability theory, which is a fusion of a classical branch of mathematics (summability theory) with a modern branch of analysis (ultrametric analysis). Several mathematicians have contributed to summability theory as well as [...]

### Contents

Preface.- Introduction and Preliminaries.- Some Arithmetic and Analysis in  $\mathbb{Q}_p$ : Derivatives in Ultrametric Analysis.- Ultrametric Functional Analysis.- Ultrametric Summability Theory.- References.- Index.

### Fields of interest

Sequences, Series, Summability; Analysis

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-81-322-1646-9](http://www.springer.com/978-81-322-1646-9)

### Softcover

2013. IX, 102 p. (SpringerBriefs in Mathematics)

ISBN 978-81-322-1646-9

**Due: October 31, 2013**

B.S. Jovanović, University of Belgrade, Belgrade, Serbia; E. Süli, University of Oxford, Oxford, United Kingdom

## Analysis of Finite Difference Schemes

For Linear Partial Differential Equations with Generalized Solutions

This book develops a systematic and rigorous mathematical theory of finite difference methods for linear elliptic, parabolic and hyperbolic partial differential equations with nonsmooth solutions. Finite difference methods are a classical class of techniques for the numerical approximation of partial differential equations. Traditionally, their convergence analysis presupposes the smoothness of the coefficients, source terms, initial and boundary data, and of the associated solution to the differential equation. This then enables the application of elementary analytical tools to explore their stability and accuracy. The assumptions on the smoothness of the data and of the associated [...]

### Features

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### Contents

Distributions and function spaces.- Elliptic boundary-value problems.- Finite difference approximation of parabolic problems.- Finite difference approximation of hyperbolic problems.

### Fields of interest

Numerical Analysis; Partial Differential Equations

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4471-5459-4](http://www.springer.com/978-1-4471-5459-4)

### Hardcover

2014. XIII, 408 p. 7 illus. (Springer Series in Computational Mathematics, Vol. 46)  
ISBN 978-1-4471-5459-4

Due: October 31, 2013

Y. Qin, Donghua University, Shanghai, China (P.R.)

## Analytic Inequalities and Their Applications in PDEs

This book aims to present some analytic inequalities and their applications in partial differential equations. These inequalities include integral inequalities, differential inequalities and difference inequalities which play a crucial role in establishing (uniform) bounds, global existence, large-time behavior, decay rates and blow-up of solutions to various classes of evolutionary differential equations. The material summarizes a vast literature such as published papers, preprints and books in which inequalities are categorized in terms of different properties which are consequences of those inequalities such as (uniform) bounds, global existence, large-time behavior, decay rates [...]

### Features

This book aims to present some analytic inequalities and their applications in partial differential equations. These inequalities include integral inequalities, differential inequalities and difference inequalities which play a crucial role in establishing (uniform) bounds, global existence, large-time behavior, decay rates and blow-up of solutions to various classes of evolutionary differential equations. The [...]

### Contents

Preface.- 1 Integral Inequalities.- 2 Differential and Difference Inequalities.- 3 Global Attractors for Evolutionary Differential Equations.- 4 Global Existence and Uniqueness for Evolutionary PDEs.- 5 Asymptotic Behavior for Evolutionary PDEs.- 6 Blow-up of Solutions to Evolutionary PDEs.- 7 Appendix: Basic Inequalities.

### Fields of interest

Partial Differential Equations; Mechanics; Operator Theory; Mathematical Physics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-00830-1](http://www.springer.com/978-3-319-00830-1)

### Hardcover

2014. Approx. 690 p. (Advances in Partial Differential Equations, Vol. 241)  
ISBN 978-3-319-00830-1

Due: December 31, 2013

M.R. Adhikari, IMBIC International Research Institute, Kolkata, India; A. Adhikari, University of Calcutta, Kolkata, India

## Basic Modern Algebra with Applications

The book is primarily intended as a textbook on modern algebra for undergraduate mathematics students. It is also useful for those who are interested in supplementary reading at a higher level. The text is designed in such a way that it encourages independent thinking and motivates students towards further study. The book covers all major topics in group, ring, vector space and module theory that are usually contained in a standard modern algebra text. In addition, it studies semigroup, group action, Hopf's group, topological groups and Lie groups with their actions, applications of ring theory to algebraic geometry, and defines Zariski topology, as well as applications of module [...]

### Features

The book is primarily intended as a textbook on modern algebra for undergraduate mathematics students. It is also useful for those who are interested in supplementary reading at a higher level. The text is designed in such a way that it encourages independent thinking and motivates students towards further study. The book covers all major topics in group, ring, vector space and module theory that are usually [...]

### Contents

Prerequisites: Basics of Set Theory and Integers.- Groups: Introductory Concepts.- Actions of Groups, Topological Groups and semigroups.- Rings: Introductory Concepts.- Ideals of Rings: Introductory concepts.- Factorization in Integral Domains and in Polynomial Rings.- Rings with Chain Conditions.- Vector Spaces.- Modules.- Algebraic Aspects of Number Theory.- Algebraic Numbers.- Introduction to Mathematical Cryptography.- Appendix A: Some Aspects of Semirings.- Appendix B: Category Theory.- Appendix C: A Brief Historical Note.

### Fields of interest

Algebra; Commutative Rings and Algebras; Group Theory and Generalizations; Number Theory; Category Theory, Homological Algebra; Applications of Mathematics

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-81-322-1598-1](http://www.springer.com/978-81-322-1598-1)

### Hardcover

2014. XVIII, 545 p. 55 illus.  
ISBN 978-81-322-1598-1

Due: October 31, 2013

R. López, University of Granada, Granada, Spain

## Constant Mean Curvature Surfaces with Boundary

The study of surfaces with constant mean curvature (CMC) is one of the main topics in classical differential geometry. Moreover, CMC surfaces are important mathematical models for the physics of interfaces in the absence of gravity, where they separate two different media, or for capillary phenomena. Further, as most techniques used in the theory of CMC surfaces not only involve geometric methods but also PDE and complex analysis, the theory is also of great interest for many other mathematical fields. While minimal surfaces and CMC surfaces in general have already been treated in the literature, the present work is the first to present a comprehensive study of “compact surfaces with[...]

### Features

The study of surfaces with constant mean curvature (CMC) is one of the main topics in classical differential geometry. Moreover, CMC surfaces are important mathematical models for the physics of interfaces in the absence of gravity, where they separate two different media, or for capillary phenomena. Further, as most techniques used in the theory of CMC surfaces not only involve geometric methods but also [...]

### Contents

Introduction.- Surfaces with Constant Mean Curvature.- Constant Mean Curvature Embedded Surfaces.- The Flux Formula for Constant Mean Curvature Surfaces.- The Area and the Volume of a Constant Mean Curvature Surface.- Constant Mean Curvature Discs with Circular Boundary.- The Dirichlet Problem of the CMC Equation.- The Dirichlet Problem in Unbounded Domains.- Constant Mean Curvature Surfaces in Hyperbolic Space.- The Dirichlet Problem in Hyperbolic Space.- Constant Mean Curvature Surfaces in Lorentz-Minkowski Space.- Appendix: A. The Variation Formula of the Area and the Volume.- B.Open[...]

### Fields of interest

Differential Geometry; Partial Differential Equations; Geometry

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39625-0](http://www.springer.com/978-3-642-39625-0)

### Hardcover

2013. XIV, 292 p. 64 illus. (Springer Monographs in Mathematics)

ISBN 978-3-642-39625-0

usually dispatched within 3 to 5 business days

R.P. Agarwal, Texas A&M University - Kingsville, Kingsville, USA; D. O'Regan, National University of Ireland, Galway, Galway, Ireland; P.J.Y. Wong, Nanyang Technological University, Singapore, Singapore

## Constant-Sign Solutions of Systems of Integral Equations

This monograph provides a complete and self-contained account of the theory, methods, and applications of constant-sign solutions of integral equations. In particular, the focus is on different systems of Volterra and Fredholm equations. The presentation is systematic and the material is broken down into several concise chapters. An introductory chapter covers the basic preliminaries. Throughout the book many examples are included to illustrate the theory. The book contains a wealth of results that are both deep and interesting. This unique book will be welcomed by mathematicians working on integral equations, spectral theory, and on applications of fixed point theory and boundary[...]

### Features

This monograph provides a complete and self-contained account of the theory, methods, and applications of constant-sign solutions of integral equations. In particular, the focus is on different systems of Volterra and Fredholm equations. The presentation is systematic and the material is broken down into several concise chapters. An introductory chapter covers the basic preliminaries. Throughout the book many [...]

### Contents

Introduction and Preliminaries.- System of Fredholm Integral Equations: Existence of a Constant-Sign Solution.- System of Fredholm Integral Equations: Eigenvalues.- System of Fredholm Integral Equations: Triple Constant-Sign Solutions.- System of Fredholm Integral Equations: Existence of a Constant-Sign  $L_p$  Solution.- System of Fredholm Integral Equations: Semipositone and Singular Case.- Systems of Fredholm and Volterra Integral Equations: Integrable Singularities.- Systems of Higher Order Boundary Value Problems: Integrable Singularities.- System of Volterra Integral Equations:[...]

### Fields of interest

Integral Equations; Ordinary Differential Equations

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01254-4](http://www.springer.com/978-3-319-01254-4)

### Hardcover

2013. XIV, 648 p.

ISBN 978-3-319-01254-4

usually dispatched within 3 to 5 business days

October 31, 2013

V. Demyanov, Universitetskii prospekt, Saint Petersburg, Russian Federation; P.M. Pardalos, University of Florida, Gainesville, USA; M. Batsyn (Eds.)

## Constructive Nonsmooth Analysis and Related Topics

This volume contains a collection of papers based on lectures and presentations delivered at the International Conference on Constructive Nonsmooth Analysis (CNSA) held in St. Petersburg (Russia) from June 18-23, 2012. This conference was organized to mark the 50th anniversary of the birth of nonsmooth analysis and nondifferentiable optimization and was dedicated to J.-J. Moreau and the late B.N. Pshenichnyi, A.M. Rubinov, and N.Z. Shor, whose contributions to NSA and NDO remain invaluable. The first four chapters of the book are devoted to the theory of nonsmooth analysis. Chapters 5-8 contain new results in nonsmooth mechanics and calculus of variations. Chapters 9-13 are related to[...]

### Features

This volume contains a collection of papers based on lectures and presentations delivered at the International Conference on Constructive Nonsmooth Analysis (CNSA) held in St. Petersburg (Russia) from June 18-23, 2012. This conference was organized to mark the 50th anniversary of the birth of nonsmooth analysis and nondifferentiable optimization and was dedicated to J.-J. Moreau and the late B.N. [...]

### Contents

Constructive Nonsmooth Analysis and Related Topics (V. Demyanov, P.M. Pardalos, M. Batsyn).- Use Model Theory in Nonsmooth Analysis (S.S. Kutateladze).- Demyanov Difference in Infinite Dimensional Spaces (J. Grzybowski, D. Pallaschke, R. Urbanski).- Separable Reduction of Metric Regularity Properties (A.D. Ioffe).- Construction of Pairs of Reproducing Kernel Banach Spaces (P.G. Georgiev, L. Sanchez-Gonzalez, P.M. Pardalos).- On the Regularization Method in Nondifferentiable Optimization Applied to Hemivariational Inequalities (N. Ovcharova, J. Gwinner).- Dynamics and Optimization of[...]

### Fields of interest

Optimization; Algorithms; Dynamical Systems and Ergodic Theory; Computational Science and Engineering

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-8614-5](http://www.springer.com/978-1-4614-8614-5)

### Hardcover

2014. VIII, 273 p. 31 illus., 7 illus. in color. (Springer Optimization and Its Applications, Vol. 87)

ISBN 978-1-4614-8614-5

Due: October 31, 2013

M. Mursaleen, Aligarh Muslim University, Aligarh, India; S.A. Mohiuddine, King Abdulaziz University, Jeddah, Saudi Arabia

## Convergence Methods for Double Sequences and Applications

This book exclusively deals with the study of almost convergence and statistical convergence of double sequences. The notion of "almost convergence" is perhaps the most useful notion in order to obtain a weak limit of a bounded non-convergent sequence. There is another notion of convergence known as the "statistical convergence", introduced by H. Fast, which is an extension of the usual concept of sequential limits. This concept arises as an example of "convergence in density" which is also studied as a summability method. Even unbounded sequences can be dealt with by using this method. The book also discusses the applications of these non-matrix methods in approximation theory.[...]

### Features

This book exclusively deals with the study of almost convergence and statistical convergence of double sequences. The notion of "almost convergence" is perhaps the most useful notion in order to obtain a weak limit of a bounded non-convergent sequence. There is another notion of convergence known as the "statistical convergence", introduced by H. Fast, which is an extension of the usual concept of [...]

### Contents

Chapter 1: Almost and statistical convergence of ordinary sequences: A preview.- Chapter 2: Almost convergence of double sequences.- Chapter 3: Almost regular matrices.- Chapter 4: Absolute almost convergence of double sequences.- Chapter 5: Almost convergence and core theorems.- Chapter 6: Application of almost convergence in approximation theorems for functions of two variables.- Chapter 7: Statistical convergence of double sequences.- Chapter 8: Statistical approximation of positive linear operators.- Chapter 9: Double series and convergence tests.- References.

### Fields of interest

Sequences, Series, Summability; Approximations and Expansions; Analysis

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-81-322-1610-0](http://www.springer.com/978-81-322-1610-0)

### Hardcover

2014. IX, 171 p.  
ISBN 978-81-322-1610-0

**Due: October 31, 2013**

A. Iosevich, University of Rochester, Rochester, USA; E. Liflyand, Bar-Ilan University, Ramat-Gan, Israel

## Decay of the Fourier Transform

### Analytic and Geometric Aspects

The Plancherel formula says that the  $L^2$  norm of the function is equal to the  $L^2$  norm of its Fourier transform. This implies that at least on average, the Fourier transform of an  $L^2$  function decays at infinity. This book is dedicated to the study of the rate of this decay under various assumptions and circumstances, far beyond the original  $L^2$  setting. Analytic and geometric properties of the underlying functions interact in a seamless symbiosis which underlines the wide range influences and applications of the concepts under consideration.

### Features

The Plancherel formula says that the  $L^2$  norm of the function is equal to the  $L^2$  norm of its Fourier transform. This implies that at least on average, the Fourier transform of an  $L^2$  function decays at infinity. This book is dedicated to the study of the rate of this decay under various assumptions and circumstances, far beyond the original  $L^2$  setting. Analytic and geometric [...]

### Contents

Foreword.- Introduction.- Chapter 1. Basic properties of the Fourier transform.- Chapter 2. Oscillatory integrals and Fourier transforms in one variable.- Chapter 3. The Fourier transform of an oscillating function.- Chapter 4. The Fourier transform of a radial function.- Chapter 5. Multivariate extensions.- Appendix.- Bibliography.

### Fields of interest

Analysis; Fourier Analysis

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-0348-0624-4](http://www.springer.com/978-3-0348-0624-4)

### Hardcover

2014. Approx. 350 p.  
ISBN 978-3-0348-0624-4

**Due: February 28, 2014**

A. Némethi, Hungarian Academy of Sciences, Budapest, Hungary; A. Szilárd, Hungarian Academy of Sciences, Budapest, Hungary (Eds.)

## Deformations of Surface Singularities

The present publication contains a special collection of research and review articles on deformations of surface singularities, that put together serve as an introductory survey of results and methods of the theory, as well as open problems and examples.

The aim is to collect material that will help mathematicians already working or wishing to work in this area to deepen their insight and eliminate the technical barriers in this learning process. Additionally, we introduce some material which emphasizes the newly found relationship with the theory of Stein fillings and symplectic geometry. This links two main theories of mathematics: low dimensional topology and algebraic [...]

### Features

The present publication contains a special collection of research and review articles on deformations of surface singularities, that put together serve as an introductory survey of results and methods of the theory, as well as open problems, important examples and connections to other areas of mathematics. The aim is to collect material that will help mathematicians already working or wishing to work in [...]

### Contents

Altmann, K. and Kastner, L.: Negative Deformations of Toric Singularities that are Smooth in Codimension Two.- Bhupal, M. and Stipsicz, A.I.: Smoothing of Singularities and Symplectic Topology.- Ilten, N.O.: Calculating Milnor Numbers and Versal Component Dimensions from P-Resolution Fans.- Némethi, A.: Some Meeting Points of Singularity Theory and Low Dimensional Topology.- Stevens, J.: The Versal Deformation of Cyclic Quotient Singularities.- Stevens, J.: Computing Versal Deformations of Singularities with Hauser's Algorithm.- Van Straten, D.: Tree Singularities: Limits, Series and [...]

### Fields of interest

Algebraic Topology; Algebraic Geometry

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-39130-9](http://www.springer.com/978-3-642-39130-9)

### Hardcover

2013. Approx. 280 p. (Bolyai Society Mathematical Studies, Vol. 23)

ISBN 978-3-642-39130-9

**Online orders shipping within 2-3 days.**

L. Lovász, Eötvös Loránd University, Budapest, Hungary; I. Ruzsa, Hungarian Academy of Sciences, Budapest, Hungary; V.T. Sós, Hungarian Academy of Sciences, Budapest, Hungary; D. Palvolgyi, Eötvös University, Budapest, Hungary (Eds.)

## Erdős Centennial

Paul Erdős was one of the most influential mathematicians of the twentieth century, whose work in number theory, combinatorics, set theory, analysis, and other branches of mathematics has determined the development of large areas of these fields. In 1999, a conference was organized to survey his work, his contributions to mathematics, and the far-reaching impact of his work on many branches of mathematics. On the 100th anniversary of his birth, this volume undertakes the almost impossible task to describe the ways in which problems raised by him and topics initiated by him (indeed, whole branches of mathematics) continue to flourish. Written by outstanding researchers in these areas, [...]

### Features

Paul Erdős was one of the most influential mathematicians of the twentieth century, whose work in number theory, combinatorics, set theory, analysis, and other branches of mathematics has determined the development of large areas of these fields. In 1999, a conference was organized to survey his work, his contributions to mathematics, and the far-reaching impact of his work on many branches of mathematics. [...]

### Contents

Contents.- Preface.- Alon, N.: Paul Erdős and Probabilistic Reasoning.- Benjamini, I.: Euclidean vs. Graph Metric.- Bollobas, B. and Riordan, O.: The Phase Transition in the Erdős-Rényi Random Graph Process.- Bourgain, J.: Around the Sum-product Phenomenon.- Breuillard, E., Green, B. and Tao, T.: Small Doubling in Groups.- Diamond, H. G.: Erdős and Multiplicative Number Theory.- Füredi, Z. and Simonovits, M.: The History of Degenerate (Bipartite) Extremal Graph Problems.- Gowers, W. T.: Erdős and Arithmetic Progressions.- Graham, R. L.: Paul Erdős and Egyptian Fractions.- Györy, K.: [...]

### Fields of interest

Combinatorics; Number Theory; Probability Theory and Stochastic Processes; Mathematical Logic and Formal Languages

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-642-39285-6](http://www.springer.com/978-3-642-39285-6)

### Hardcover

2013. Approx. 700 p. (Bolyai Society Mathematical Studies, Vol. 25)

ISBN 978-3-642-39285-6

Online orders shipping within 2-3 days.

G.F. Birkenmeier, University of Louisiana, Lafayette, Lafayette, USA; J.K. Park, Busan National University, Busan, Korea(Rep.); S.T. RIZVI

## Extensions of Rings and Modules

The focus of this monograph is the study of rings and modules which have a rich supply of direct summands with respect to various extensions. The first four chapters of the book discuss rings and modules which generalize injectivity (e.g., extending modules), or for which certain annihilators become direct summands (e.g., Baer rings). Ring extensions such as matrix, polynomial, group ring, and essential extensions of rings from the aforementioned classes are considered in the next three chapters. A theory of ring and module hulls relative to a specific class of rings or modules is introduced and developed in the following two chapters. While applications of the results presented can [...]

### Features

The focus of this monograph is the study of rings and modules which have a rich supply of direct summands with respect to various extensions. The first four chapters of the book discuss rings and modules which generalize injectivity (e.g., extending modules), or for which certain annihilators become direct summands (e.g., Baer rings). Ring extensions such as matrix, polynomial, group ring, and essential [...]

### Contents

Preliminaries and Basic Results.- Injectivity and Some of Its Generalizations.- Baer, Rickart, and Quasi-Baer Rings.- Baer, Quasi-Baer Modules, and Their Applications.- Triangular Matrix Representations and Triangular Matrix Extensions.- Matrix, Polynomial, and Group Ring Extensions.- Essential Overring Extensions - Beyond the Maximal Ring of Quotients.- Ring and Module Hulls.- Hulls of Ring Extensions.- Applications to Rings of Quotients and  $C^*$  Algebras.- Open Problems and Questions.- References.- Index.

### Fields of interest

Algebra; Functional Analysis; Linear and Multilinear Algebras, Matrix Theory

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-0-387-92715-2](http://www.springer.com/978-0-387-92715-2)

### Hardcover

2013. XX, 432 p.

ISBN 978-0-387-92715-2

usually dispatched within 3 to 5 business days

R.W. Shonkwiler, Georgia Institute of Technology, Atlanta, USA

## Finance with Monte Carlo

This text introduces upper division undergraduate/beginning graduate students in mathematics, finance, or economics, to the core topics of a beginning course in finance/financial engineering. Particular emphasis is placed on exploiting the power of the Monte Carlo method to illustrate and explore financial principles. Monte Carlo is the uniquely appropriate tool for modeling the random factors that drive financial markets and simulating their implications. The Monte Carlo method is introduced early and it is used in conjunction with the geometric Brownian motion model (GBM) to illustrate and analyze the topics covered in the remainder of the text. Placing focus on Monte Carlo methods [...]

### Features

This text introduces upper division undergraduate/beginning graduate students in mathematics, finance, or economics, to the core topics of a beginning course in finance/financial engineering. Particular emphasis is placed on exploiting the power of the Monte Carlo method to illustrate and explore financial principles. Monte Carlo is the uniquely appropriate tool for modeling the random factors that drive [...]

### Contents

1. Geometric Brownian Motion and the Efficient Market Hypothesis.- 2. Return and Risk.- 3. Forward and Option Contracts and their Pricing.- 4. Pricing Exotic Options.- 5. Option Trading Strategies.- 6. Alternative to GBM Prices.- 7. Kelly's Criterion.- Appendices.- A. Some Mathematical Background Topics.- B. Stochastic Calculus.- C. Convergence of the Binomial Method.- D. Variance Reduction Techniques.- E. Shell Sort.- F. Next Day Prices Program.- References.- List of Notation.- List of Algorithms.- Index.

### Fields of interest

Quantitative Finance; Mathematical Modeling and Industrial Mathematics; Probability Theory and Stochastic Processes; Numerical Analysis

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-1-4614-8510-0](http://www.springer.com/978-1-4614-8510-0)

### Hardcover

2013. XIX, 250 p. 70 illus., 17 illus. in color. (Springer Undergraduate Texts in Mathematics and Technology) ISBN 978-1-4614-8510-0

usually dispatched within 3 to 5 business days  
October 31, 2013

M. Willem, Université catholique de Louvain, Louvain-la-Neuve, Belgium

## Functional Analysis

### Fundamentals and Applications

The goal of this work is to present the principles of functional analysis in a clear and concise way. The first three chapters of Functional Analysis: Fundamentals and Applications describe the general notions of distance, integral and norm, as well as their relations. The three chapters that follow deal with fundamental examples: Lebesgue spaces, dual spaces and Sobolev spaces. Two subsequent chapters develop applications to capacity theory and elliptic problems. In particular, the isoperimetric inequality and the Pólya-Szegő and Faber-Krahn inequalities are proved by purely functional methods. The epilogue contains a sketch of the history of functional analysis, in relation with[...]

### Features

The goal of this work is to present the principles of functional analysis in a clear and concise way. The first three chapters of Functional Analysis: Fundamentals and Applications describe the general notions of distance, integral and norm, as well as their relations. The three chapters that follow deal with fundamental examples: Lebesgue spaces, dual spaces and Sobolev spaces. Two subsequent [...]

### Contents

Preface.- The Integral.- Norm.- Lebesgue Spaces.- Duality.- Sobolev Spaces.- Capacity.- Elliptic Problems.- Appendix.- Epilogue.- References.- Index of Notations.- Index.

### Fields of interest

Functional Analysis; Analysis; Partial Differential Equations; Mathematics (general)

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-7003-8](http://www.springer.com/978-1-4614-7003-8)

### Hardcover

2013. XIII, 213 p. 18 illus. (Cornerstones)

ISBN 978-1-4614-7003-8

**usually dispatched within 3 to 5 business days**

A. Khovanskii

## Galois Theory, Coverings, and Riemann Surfaces

The first part of this book provides an elementary and self-contained exposition of classical Galois theory and its applications to questions of solvability of algebraic equations in explicit form. The second part describes a surprising analogy between the fundamental theorem of Galois theory and the classification of coverings over a topological space. The third part contains a geometric description of finite algebraic extensions of the field of meromorphic functions on a Riemann surface and provides an introduction to the topological Galois theory developed by the author. All results are presented in the same elementary and self-contained manner as classical Galois theory, making[...]

### Features

The first part of this book provides an elementary and self-contained exposition of classical Galois theory and its applications to questions of solvability of algebraic equations in explicit form. The second part describes a surprising analogy between the fundamental theorem of Galois theory and the classification of coverings over a topological space. The third part contains a geometric description of [...]

### Contents

Chapter 1 Galois Theory: 1.1 Action of a Solvable Group and Representability by Radicals.- 1.2 Fixed Points under an Action of a Finite Group and Its Subgroups.- 1.3 Field Automorphisms and Relations between Elements in a Field.- 1.4 Action of a k-Solvable Group and Representability by k-Radicals.- 1.5 Galois Equations.- 1.6 Automorphisms Connected with a Galois Equation.- 1.7 The Fundamental Theorem of Galois Theory.- 1.8 A Criterion for Solvability of Equations by Radicals.- 1.9 A Criterion for Solvability of Equations by k-Radicals.- 1.10 Unsolvability of Complicated Equations by[...]

### Fields of interest

Field Theory and Polynomials; Group Theory and Generalizations; Topology; Algebra; Algebraic Geometry

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-38840-8](http://www.springer.com/978-3-642-38840-8)

### Hardcover

2013. VIII, 81 p.

ISBN 978-3-642-38840-8

**Due: September 30, 2013**

R. Denk, Universität Konstanz, Konstanz, Germany; M. Kaip, Universität Konstanz, Konstanz, Germany

## General Parabolic Mixed Order Systems in $L_p$ and Applications

In this text, a theory for general linear parabolic partial differential equations is established which covers equations with inhomogeneous symbol structure as well as mixed-order systems. Typical applications include several variants of the Stokes system and free boundary value problems. We show well-posedness in  $L_p$ - $L_q$ -Sobolev spaces in time and space for the linear problems (i.e., maximal regularity) which is the key step for the treatment of nonlinear problems. The theory is based on the concept of the Newton polygon and can cover equations which are not accessible by standard methods as, e.g., semigroup theory. Results are obtained in different types of non-integer  $L_p$ -Sobolev[...]

### Features

In this text, a theory for general linear parabolic partial differential equations is established, which covers equations with inhomogeneous symbol structure as well as mixed-order systems. Typical applications include several variants of the Stokes system and free boundary value problems. We show well-posedness in  $L_p$ - $L_q$ -Sobolev spaces in time and space for the linear problems (i.e., maximal [...])

### Contents

Introduction and Outline.- 1 The joint time-space  $H(\infty)$ -calculus.- 2 The Newton polygon approach for mixed-order systems.- 3 Triebel-Lizorkin spaces and the  $L_p$ - $L_q$  setting.- 4 Application to parabolic differential equations.- List of figures.- Bibliography.- List of symbols.- Index.

### Fields of interest

Partial Differential Equations; Mathematical Physics; Operator Theory

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01999-4](http://www.springer.com/978-3-319-01999-4)

### Hardcover

2014. VIII, 250 p. (Operator Theory: Advances and Applications, Vol. 239)

ISBN 978-3-319-01999-4

**Due: December 20, 2013**

G. Stefani, Università degli Studi di Firenze, Firenze, Italy; U. Boscain, Ecole Polytechnique and team INRIA GECO, Palaiseau Cedex, France; J.-P. Gauthier, Université de Toulon, LA GARDE CEDEX, France; A. Sarychev, Università degli studi di Firenze, Firenze, Italy; M. Sigalotti, Ecole Polytechnique, Palaiseau Cedex, France (Eds.)

## Geometric Control Theory and sub-Riemannian Geometry

Honoring Andrei Agrachev's 60th birthday, this volume presents recent advances in the interaction between Geometric Control Theory and sub-Riemannian geometry. On the one hand, Geometric Control Theory used the differential geometric and Lie algebraic language for studying controllability, motion planning, stabilizability and optimality for control systems. The geometric approach turned out to be fruitful in applications to robotics, vision modeling, mathematical physics etc. On the other hand, Riemannian geometry and its generalizations, such as sub-Riemannian, Finslerian geometry etc., have been actively adopting methods developed in the scope of geometric control. Application of[...]

### Features

This volume presents recent advances in the interaction between Geometric Control Theory and sub-Riemannian geometry. On the one hand, Geometric Control Theory used the differential geometric and Lie algebraic language for studying controllability, motion planning, stabilizability and optimality for control systems. The geometric approach turned out to be fruitful in applications to robotics, vision modeling, [...]

### Contents

1 A. A. Agrachev - Some open problems.- 2 D. Barilari, A. Lerario - Geometry of Maslov cycles.- 3 Y. Baryshnikov, B. Shapiro - How to Run a Centipede: a Topological Perspective.- 4 B. Bonnard, O. Cots, L. Jassionnesse - Compute conjugate and cut loci on Riemannian surfaces.- 5 J.-B. Caillaud, C. Royer - On the injectivity and nonfocal domains of the ellipsoid of revolution.- 6 P. Cannarsa, R. Guglielmi - Null controllability in large time for the parabolic Grushin operator with singular potential.- 7 Y. Chitour, M. Godoy Molina, P. Kokkonen - The[...]

### Fields of interest

Calculus of Variations and Optimal Control; Optimization; Global Analysis and Analysis on Manifolds; Differential Geometry

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-02131-7](http://www.springer.com/978-3-319-02131-7)

### Hardcover

2014. Approx. 400 p. (Springer INdAM Series, Vol. 5)  
ISBN 978-3-319-02131-7

**Due: November 30, 2013**

F. Borceux, University of Louvain, Louvain-la-Neuve, Belgium

## Geometric Trilogy

Axiomatic, Algebraic and Differential Approaches to Geometry

The Trilogy intends to introduce the reader to the multiple complementary aspects of geometry, paying attention to the historical birth and growth of the ideas and results, and concluding with a contemporary presentation of the various topics considered. Three essentially independent volumes approach geometry via the axiomatic, the algebraic and the differential points of view. The "ruler and compass" approach to geometry, developed by the Greek mathematicians of the Antiquity, remained the only reference in Geometry – and even in Mathematics -- for more than two millenniums. The fruitless efforts for solving the so-called "classical problems" of Greek geometry lead eventually to a[...]

### Features

The Trilogy intends to introduce the reader to the multiple complementary aspects of geometry, paying attention to the historical birth and growth of the ideas and results, and concluding with a contemporary presentation of the various topics considered. Three essentially independent volumes approach geometry via the axiomatic, the algebraic and the differential points of view. The "ruler and compass" [...]

### Fields of interest

Geometry; History of Mathematics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01804-1](http://www.springer.com/978-3-319-01804-1)

### Hardcover

2013. 1350 p. 3 volume-set.  
ISBN 978-3-319-01804-1

**Due: December 18, 2013**

Y. Qin, Donghua University, Shanghai, China (P.R.); X. Liu, Shanghai Institute of Foreign Trade, Shanghai, China (P.R.); T. Wang, Virginia Tech, Blacksburg, USA

## Global Wellposedness of Nonlinear Evolutionary Fluid Equations

This book presents recent results on nonlinear evolutionary fluid equations such as the compressible (radiative) magnetohydrodynamics (MHD) equations, compressible viscous micropolar fluid equations, the full non-Newtonian fluid equations and non-autonomous compressible Navier-Stokes equations. It summarizes recently published research by the authors and their colleagues and also includes new and unpublished material. This type of partial differential equations arises in many fields of mathematics, but also in other branches of science such as physics and fluid dynamics. This book will be a valuable resource for graduate students and researchers interested in partial differential[...]

### Features

This book presents recent results on nonlinear evolutionary fluid equations such as the compressible (radiative) magnetohydrodynamics (MHD) equations, compressible viscous micropolar fluid equations, the full non-Newtonian fluid equations and non-autonomous compressible Navier-Stokes equations. It summarizes recently published research by the authors and their colleagues and also includes new and [...]

### Contents

Preface.- 1 Global Existence and Asymptotic Behavior for the Cauchy Problem of the 1D Magnetohydrodynamic Fluid System.- 2 Global Existence and Exponential Stability for a 1D Compressible and Radiative MHD Flow.- 3 Global Smooth Solutions for 1D Thermally Radiative Magnetohydrodynamics with Selfgravitation.- 4 Global Smooth Solutions to a 1D Self-gravitating Viscous Radiative and Reactive Gas.- 5 The Cauchy Problem for a 1D Compressible Viscous Micropolar Fluid Model.- 6 Global Existence and Exponential Stability for a 1D Compressible Viscous Micropolar Fluid Model.- 7 Global Existence[...]

### Fields of interest

Mathematical Physics; Partial Differential Equations; Mathematical Methods in Physics; Fluid- and Aerodynamics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-0348-0593-3](http://www.springer.com/978-3-0348-0593-3)

### Softcover

2014. IX, 174 p. (Frontiers in Mathematics)  
ISBN 978-3-0348-0593-3

**Due: November 2013**

P.M. Pardalos, University of Florida, Gainesville, USA; D.-Z. Du, University of Texas, Dallas, Richardson, USA; R.L. Graham, University of California, San Diego, La Jolla, USA (Eds.)

Due: July 14, 2013

A. Karp, Columbia University, New York, USA; G. Schubring, Universität Bielefeld, Bielefeld, Germany (Eds.)

## Handbook of Combinatorial Optimization

The second edition of this 7-volume handbook is intended to be a basic yet comprehensive reference work in combinatorial optimization that will benefit newcomers and researchers for years to come. This multi-volume work deals with several algorithmic approaches for discrete problems as well as with many combinatorial problems. The editors have brought together almost every aspect of this enormous field of combinatorial optimization, an area of research at the intersection of applied mathematics, computer science, and operations research and which overlaps with many other areas such as computation complexity, computational biology, VLSI design, communications networks, and management[...]

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### Contents

Introduction.- Part 1. General Methodology.- Analysis of Greedy Approximations.- Guillotine Partition in Geometric Optimization.- Mixed-Integer Nonlinear Optimization in Process Synthesis.- Connection between Nonlinear Programming and Discrete Optimization.- Interior Point Methods for Combinatorial Optimization.- Fractional Combinatorial Optimization.- Reformulation-Linearization Techniques for Discrete Optimization Problems.- Grobner Bases in Integer Programming.- Dynamical System Approaches to Combinatorial Optimization.- Semidefinite Relaxation, Multivariate Norm Distribution and[...]

### Fields of interest

Optimization; Combinatorics

### Target groups

Research

### Type of publication

Reference work

More on [www.springer.com/978-1-4419-7996-4](http://www.springer.com/978-1-4419-7996-4)

### Hardcover

2013. XXI, 3409 p. 685 illus., 169 illus. in color. In 5 volumes, not available separately.  
ISBN 978-1-4419-7996-4

**usually dispatched within 3 to 5 business days**  
**September 30, 2013**

2013. XXI, 3409 p. 685 illus., 169 illus. in color. eReference.  
ISBN 978-1-4419-7997-1

**Online orders shipping within 2-3 days.**

### Softcover

2013. XXI, 3409 p. 685 illus., 169 illus. in color. Print + eReference. In 2 volumes, not available separately.  
ISBN 978-1-4614-3975-2

## Handbook on the History of Mathematics Education

This is the first comprehensive International Handbook on the History of Mathematics Education, covering a wide spectrum of epochs and civilizations, countries and cultures. Until now, much of the research into the rich and varied history of mathematics education has remained inaccessible to the vast majority of scholars, not least because it has been written in the language, and for readers, of an individual country. And yet a historical overview, however brief, has become an indispensable element of nearly every dissertation and scholarly article. This handbook provides, for the first time, a comprehensive and systematic aid for researchers around the world in finding the[...]

### Features

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Part 1. History and Methodology of the Field.- 1. On historiography of teaching and learning mathematics.- 2. The History of Mathematics Education: Developing a Research Methodology.- Part 2. Mathematics Education in Different Epochs and in Different Regions: Antiquity and the Middle Ages.- 3. Mathematics Education in Antiquity.- 4. Mathematics Education in Oriental Antiquity and the Middle Ages.- 5. Teaching the Mathematical Sciences in Islamic Societies, 8th-17th Centuries.- 6. Mathematics Education in the European Middle Ages.- Part 3. Mathematics Education in Different Epochs and in[...]

### Fields of interest

History of Mathematics; Mathematics Education

### Target groups

Research

### Type of publication

Handbook

More on [www.springer.com/978-1-4614-9154-5](http://www.springer.com/978-1-4614-9154-5)

### Hardcover

2014. X, 798 p. 20 illus. in color.  
ISBN 978-1-4614-9154-5

**Due: November 30, 2013**

J.P. D'Angelo, University of Illinois, Urbana-Champaign, Urbana, USA

## Hermitian Analysis

From Fourier Series to Cauchy-Riemann Geometry

Hermitian Analysis: From Fourier Series to Cauchy-Riemann Geometry provides a coherent, integrated look at various topics from undergraduate analysis. It begins with Fourier series, continues with Hilbert spaces, discusses the Fourier transform on the real line, and then turns to the heart of the book, geometric considerations. This chapter includes complex differential forms, geometric inequalities from one and several complex variables, and includes some of the author's results. The concept of orthogonality weaves the material into a coherent whole. This textbook will be a useful resource for upper-undergraduate students who intend to continue with mathematics, graduate students[...]

### Features

Hermitian Analysis: From Fourier Series to Cauchy-Riemann Geometry provides a coherent, integrated look at various topics from analysis. It begins with Fourier series, continues with Hilbert spaces, discusses the Fourier transform on the real line, and then turns to the heart of the book: geometric considerations in several complex variables. The final chapter includes complex differential forms, [...]

### Contents

Preface.- Introduction to Fourier series.- Hilbert spaces.- Fourier transform on  $\mathbb{R}$ .- Geometric considerations.- Appendix.- References.- Index.

### Fields of interest

Fourier Analysis; Differential Geometry; Ordinary Differential Equations

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8525-4](http://www.springer.com/978-1-4614-8525-4)

### Hardcover

2013. X, 203 p. 27 illus., 19 illus. in color. (Cornerstones)  
ISBN 978-1-4614-8525-4

**usually dispatched within 3 to 5 business days**  
**October 31, 2013**

H. Bellout, Northern Illinois University, DeKalb, USA; F. Bloom, Northern Illinois University, DeKalb, USA

## Incompressible Bipolar and Non-Newtonian Viscous Fluid Flow

The theory of incompressible multipolar viscous fluids is a non-Newtonian model of fluid flow, which incorporates nonlinear viscosity, as well as higher order velocity gradients, and is based on scientific first principles. The Navier-Stokes model of fluid flow is based on the Stokes hypothesis, which a priori simplifies and restricts the relationship between the stress tensor and the velocity. By relaxing the constraints of the Stokes hypothesis, the mathematical theory of multipolar viscous fluids generalizes the standard Navier-Stokes model. The rigorous theory of multipolar viscous fluids is compatible with all known thermodynamical processes and the principle of material frame[...]

### Features

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### Contents

Preface.- Acknowledgements.- I Incompressible Multipolar Fluid Dynamics.- II Plane Poiseuille Flow of Incompressible Bipolar Viscous Fluids.- III Incompressible Bipolar Fluid Dynamics: Examples of Other Flows and Geometries.- IV General Existence and Uniqueness Theorems for Incompressible Bipolar and non-Newtonian Fluid Flow.- V Attractors for Incompressible Bipolar and non-Newtonian Flows: Bounded Domains and Space Periodic Problems.- VI Inertial Manifolds, Orbit Squeezing, and Attractors for Bipolar Flow in Unbounded Channels.- A.I Notation, Definitions, and Results from Analysis.- [...]

### Fields of interest

Mathematical Physics; Partial Differential Equations; Fluid- and Aerodynamics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-00890-5](http://www.springer.com/978-3-319-00890-5)

### Hardcover

2014. XVI, 538 p. 16 illus. (Advances in Mathematical Fluid Mechanics)  
ISBN 978-3-319-00890-5

**Due: October 31, 2013**

Y. Kabanov, Université de Besançon, Besançon, France;  
M. Rutkowski, University of Sydney, Sydney, Australia; T. Zariphopoulou, University of Oxford, Oxford, United Kingdom (Eds.)

## Inspired by Finance

The Musiela Festschrift

The present volume is dedicated to Marek Musiela, an eminent scholar and practitioner who is perhaps best-known for his important contributions to problems of derivative pricing, theory of term structure of interest rates, theory of defaultable securities and other topics in modern mathematical finance. It includes 25 research papers by 47 authors, established experts and newcomers alike, that cover the whole range of the "hot" topics in the discipline. The contributed articles not only give a clear picture about what is going on in this rapidly developing field of knowledge but provide methods ready for practical implementation. They also open new prospects for further studies in [...]

### Features

The present volume is dedicated to Marek Musiela, the eminent scholar and practitioner, well-known for his important contribution into problems of derivative pricing, theory of term structure of interest rates, theory of defaultable securities and other topics of modern mathematical finance. Under the cover the reader finds 25 research papers of 47 authors, famous or young, covering the whole range of the [...]

### Contents

R. Ahlip and M. Rutkowski: Forward Start Foreign Exchange Options under Heston's Volatility and the CIR Interest Rate.- A. Bensoussan and S. R. Hoe: Real Options with Competition and Incomplete Market.- T. R. Bielecki and S. Crépey: Dynamic Hedging of Counterparty Exposure.- L. Campi: A Note on Market Completeness with American Put Options.- S. Cawston and L. Vostrikova: An  $f$ -Divergence Approach for Optimal Portfolios in Exponential Lévy Models.- B. Chouaf and S. Pergamenchtchikov: Optimal Investment with Bounded VaR for Power Utility Functions.- T. Choulli, J. Ma and M.-A. Morlais: Three [...]

### Fields of interest

Quantitative Finance

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-02068-6](http://www.springer.com/978-3-319-02068-6)

### Hardcover

2014. XVIII, 536 p. 30 illus., 13 illus. in color.  
ISBN 978-3-319-02068-6

**Due: November 30, 2013**

P. Olver, University of Minnesota, Minneapolis, USA

## Introduction to Partial Differential Equations

This textbook is designed for a one year course covering the fundamentals of partial differential equations, geared towards advanced undergraduates and beginning graduate students in mathematics, science, engineering, and elsewhere. The exposition carefully balances solution techniques, mathematical rigor, and significant applications, all illustrated by numerous examples. Extensive exercise sets appear at the end of almost every subsection, and include straightforward computational problems to develop and reinforce new techniques and results, details on theoretical developments and proofs, challenging projects both computational and conceptual, and supplementary material that [...]

### Features

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### Contents

What are Partial Differential Equations?.- Linear and Nonlinear Waves.- Fourier Series.- Separation of Variables.- Finite Differences.- Generalized Functions and Green's Functions.- Complex Analysis and Conformal Mapping.- Fourier Transforms.- Linear and Nonlinear Evolution Equations.- A General Framework for Linear Partial Differential Equations.- Finite Elements and Weak Solutions.- Dynamics of Planar Media.- Partial Differential Equations in Space.-

### Fields of interest

Partial Differential Equations; Complex Systems; Fourier Analysis

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-3-319-02098-3](http://www.springer.com/978-3-319-02098-3)

### Hardcover

2014. X, 640 p. (Undergraduate Texts in Mathematics) ISBN 978-3-319-02098-3

**Due: November 30, 2013**

O. Gasquet, Université Paul Sabatier, Toulouse Cedex 4, France; A. Herzig, Université Paul Sabatier, Toulouse Cedex 4, France; B. Said, Université Paul Sabatier, Toulouse Cedex 4, France; F. Schwarzentruber, Université Paul Sabatier, Toulouse Cedex 4, France

## Kripke's Worlds

### An Introduction to Modal Logics via Tableaux

Possible worlds models were introduced by Saul Kripke in the early 1960s. Basically, a possible world's model is nothing but a graph with labelled nodes and labelled edges. Such graphs provide semantics for various modal logics (alethic, temporal, epistemic and doxastic, dynamic, deontic, description logics) and also turned out useful for other nonclassical logics (intuitionistic, conditional, several paraconsistent and relevant logics). All these logics have been studied intensively in philosophical and mathematical logic and in computer science, and have been applied increasingly in domains such as program semantics, artificial intelligence, and more recently in the semantic web. [...]

### Features

Possible worlds models were introduced by Saul Kripke in the early 1960s. Basically, a possible worlds model is nothing but a graph with labelled nodes and labelled edges. Such graphs provide semantics for various modal logics (alethic, temporal, epistemic and doxastic, dynamic, deontic, description logics) and also turned out useful for other nonclassical logics (intuitionistic, conditional, several [...]

### Contents

Preface.- 1 Modelling things with graphs.- 2 Talking about graphs.- 3 The basics of the model construction method.- 4 Logics with simple constraints on models.- 5 Logics with transitive accessibility relations.- 6 Model Checking.- 7 Modal logics with transitive closure.- Bibliography.- Index.

### Fields of interest

Mathematical Logic and Foundations; Mathematics (general)

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-7643-8503-3](http://www.springer.com/978-3-7643-8503-3)

### Softcover

2014. XVI, 220 p. 73 illus. (Studies in Universal Logic) ISBN 978-3-7643-8503-3

**Due: November 30, 2013**

P.-Q. PAN, Southeast University, Nanjing, China (P.R.)

## Linear Programming Computation

With emphasis on computation, this book is a real breakthrough in the field of LP. In addition to conventional topics, such as the simplex method, duality, and interior-point methods, all deduced in a fresh and clear manner, it introduces the state of the art by highlighting brand-new and advanced results, including efficient pivot rules, Phase-I approaches, reduced simplex methods, deficient-basis methods, face methods, and pivotal interior-point methods. In particular, it covers the determination of the optimal solution set, feasible-point simplex method, decomposition principle for solving large-scale problems, controlled-branch method based on generalized reduced simplex [...]

### Features

With emphasis on computation, this book is a real breakthrough in the field of LP. In addition to conventional topics, such as the simplex method, duality, and interior-point methods, all deduced in a fresh and clear manner, it introduces the state of the art by highlighting brand-new and advanced results, including efficient pivot rules, Phase-I approaches, reduced simplex methods, deficient-basis methods, [...]

### Contents

Introduction.- Geometry of the Feasible Region.- Simplex Method.- Duality principle and dual simplex method.- Implementation of the Simplex Method.- Sensitivity Analysis and Parametric LP.- Variants of the Simplex Method.- Decomposition Method.- Interior Point Method.- Integer Linear Programming (ILP).- Pivot Rule.- Dual Pivot Rule.- Simplex Phase-I Method.- Dual Simplex Phase-I Method.- Reduced Simplex Method.- Improved Reduced Simplex Method.- D-Reduced Simplex Method.- Criss-Cross Simplex Method.- Generalizing Reduced Simplex Method.- Deficient-Basis Method.- Dual Deficient-Basis [...]

### Fields of interest

Linear and Multilinear Algebras, Matrix Theory; Mathematics (general); Economics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-642-40753-6](http://www.springer.com/978-3-642-40753-6)

### Hardcover

2014. XX, 850 p. 14 illus. ISBN 978-3-642-40753-6

**Due: November 30, 2013**

M.S. Osborne, University of Washington, Seattle, USA

## Locally Convex Spaces

For most practicing analysts who use functional analysis, the restriction to Banach spaces seen in most real analysis graduate texts is not enough for their research. This graduate text, while focusing on locally convex topological vector spaces, is intended to cover most of the general theory needed for application to other areas of analysis. Normed vector spaces, Banach spaces, and Hilbert spaces are all examples of classes of locally convex spaces, which is why this is an important topic in functional analysis. While this graduate text focuses on what is needed for applications, it also shows the beauty of the subject and motivates the reader with exercises of varying difficulty. [...]

### Features

For most practicing analysts who use functional analysis, the restriction to Banach spaces seen in most real analysis graduate texts is not enough for their research. This graduate text, while focusing on locally convex topological vector spaces, is intended to cover most of the general theory needed for application to other areas of analysis. Normed vector spaces, Banach spaces, and Hilbert spaces are all [...]

### Contents

1 Topological Groups.- 2 Topological Vector Spaces.- 3 Locally Convex Spaces.- 4 The Classics.- 5 Dual Spaces.- 6 Duals of Fréchet Spaces.- A Topological Oddities.- B Closed Graphs in Topological Groups.- C The Other Krein–Smulian Theorem.- D Further Hints for Selected Exercises.- Bibliography.- Index.

### Fields of interest

Functional Analysis; Topological Groups, Lie Groups

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-319-02044-0](http://www.springer.com/978-3-319-02044-0)

### Hardcover

2014. X, 202 p. (Graduate Texts in Mathematics, Vol. 269)

ISBN 978-3-319-02044-0

**Due: October 31, 2013**

J. Wei, The Chinese University of Hong Kong, Hong Kong, Hong Kong/P.R.China; M. Winter

## Mathematical Aspects of Pattern Formation in Biological Systems

This monograph is concerned with the mathematical analysis of patterns which are encountered in biological systems. It summarises, expands and relates results obtained in the field during the last fifteen years. It also links the results to biological applications and highlights their relevance to phenomena in nature. Of particular concern are large-amplitude patterns far from equilibrium in biologically relevant models. The approach adopted in the monograph is based on the following paradigms: • Examine the existence of spiky steady states in reaction-diffusion systems and select as observable patterns only the stable ones • Begin by exploring spatially homogeneous two-component [...]

### Features

This monograph is concerned with the mathematical analysis of patterns which are encountered in biological systems. It summarises, expands and relates results obtained in the field during the last fifteen years. It also links the results to biological applications and highlights their relevance to phenomena in nature. Of particular concern are large-amplitude patterns far from equilibrium in biologically [...]

### Contents

Introduction.- Existence of spikes for the Gierer-Meinhardt system in one dimension.- The Nonlocal Eigenvalue Problem (NLEP).- Stability of spikes for the Gierer-Meinhardt system in one dimension.- Existence of spikes for the shadow Gierer-Meinhardt system.- Existence and stability of spikes for the Gierer-Meinhardt system in two dimensions.- The Gierer-Meinhardt system with inhomogeneous coefficients.- Other aspects of the Gierer-Meinhardt system.- The Gierer-Meinhardt system with saturation.- Spikes for other two-component reaction-diffusion systems.- Reaction-diffusion systems with [...]

### Fields of interest

Partial Differential Equations; Mathematical and Computational Biology; Genetics and Population Dynamics; Physiological, Cellular and Medical Topics

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-1-4471-5525-6](http://www.springer.com/978-1-4471-5525-6)

### Hardcover

2014. XII, 319 p. 20 illus. (Applied Mathematical Sciences, Vol. 189)

ISBN 978-1-4471-5525-6

**usually dispatched within 3 to 5 business days**

**October 31, 2013**

E. Rosazza Gianin, Università di Milano Bicocca, Milano, Italy; C. Sgarra, Politecnico di Milano, Milano, Italy

## Mathematical Finance: Theory Review and Exercises

### From Binomial Model to Risk Measures

The book collects over 120 exercises on different subjects of Mathematical Finance, including Option Pricing, Risk Theory, and Interest Rate Models. Many of the exercises are solved, while others are only proposed. Every chapter contains an introductory section illustrating the main theoretical results necessary to solve the exercises. The book is intended as an exercise textbook to accompany graduate courses in mathematical finance offered at many universities as part of degree programs in Applied and Industrial Mathematics, Mathematical Engineering, and Quantitative Finance.

### Features

The book collects over 120 exercises on different subjects of Mathematical Finance, including Option Pricing, Risk Theory, and Interest Rate Models. Many of the exercises are solved, while others are only proposed. Every chapter contains an introductory section illustrating the main theoretical results necessary to solve the exercises. The book is intended as an exercise textbook to accompany graduate courses [...]

### Contents

1 Short review of Probability and of Stochastic Processes.- 2 Portfolio Optimization in Discrete time Models.- 3 Binomial Model for Option Pricing.- 4 Absence of arbitrage and Completeness of market models.- 5 Itô's Formula and Stochastic Differential Equations.- 6 Partial Differential Equations in Finance.- 7 Black-Scholes model for Option Pricing and Hedging Strategies.- 8 American Options.- 9 Exotic Options.- 10 Interest Rate Models.- 11 Pricing Models beyond Black-Scholes.- 12 Risk Measures: Value at Risk and beyond.

### Fields of interest

Probability Theory and Stochastic Processes; Finance / Banking; Statistics for Business, Economics, Mathematical Finance, Insurance

### Target groups

Graduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-3-319-01356-5](http://www.springer.com/978-3-319-01356-5)

### Softcover

2013. X, 278 p. (La Matematica per il 3+2, Vol. 70)

ISBN 978-3-319-01356-5

**Online orders shipping within 2-3 days.**

V. Dragan, Institute of Mathematics, Bucharest, Romania; T. Moroşan, Institute of Mathematics, Bucharest, Romania; A.-M. Stoica, University Politehnica Bucharest, Bucharest, Romania

## Mathematical Methods in Robust Control of Linear Stochastic Systems

This second edition of *Mathematical Methods in the Robust Control of Linear Stochastic Systems* includes a large number of recent results in the control of linear stochastic systems. More specifically, the new results presented are: - A unified and abstract framework for Riccati type equations arising in the stochastic control- Stability and control problems for systems perturbed by homogeneous Markov processes with infinite number of states- Mixed  $H_2 / H_\infty$  control problem and numerical procedures- Linear differential equations with positive evolution on ordered Banach spaces with applications for stochastic systems including both multiplicative white noise and Markovian jumps[...]

### Features

This second edition of *Mathematical Methods in the Robust Control of Linear Stochastic Systems* includes a large number of recent results in the control of linear stochastic systems. More specifically, the new results presented are: - A unified and abstract framework for Riccati type equations arising in the stochastic control- Stability and control problems for systems perturbed by [...]

### Contents

Preliminaries to Probability Theory and Stochastic Differential Equations.- Linear Differential Equations with Positive Evolution on Ordered Banach Spaces.- Exponential Stability in Mean Square.- Structural Properties of Linear Stochastic Systems.- A Class of Nonlinear Differential Equations on an Ordered Linear Space of Symmetric Matrices with Applications to Riccati Differential Equations of Stochastic Control.- Linear Quadratic Optimization Problems for Linear Stochastic Systems.- Stochastic  $H_2$  Optimal Control.- Stochastic Version of the Bounded Real Lemma and Applications.- Robust[...]

### Fields of interest

Systems Theory, Control; Probability Theory and Stochastic Processes

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8662-6](http://www.springer.com/978-1-4614-8662-6)

### Hardcover

2013. XV, 442 p. 10 illus., 8 illus. in color.  
ISBN 978-1-4614-8662-6

**Due: October 31, 2013**

A. Meirmanov, Kazakh-British Technical University, Almaty, Kazakhstan

## Mathematical Models for Poroelastic Flows

The book is devoted to rigorous derivation of macroscopic mathematical models as a homogenization of exact mathematical models at the microscopic level. The idea is quite natural: one first must describe the joint motion of the elastic skeleton and the fluid in pores at the microscopic level by means of classical continuum mechanics, and then use homogenization to find appropriate approximation models (homogenized equations). The Navier-Stokes equations still hold at this scale of the pore size in the order of 5 – 15 microns. Thus, as we have mentioned above, the macroscopic mathematical models obtained are still within the limits of physical applicability. These mathematical models[...]

### Features

The book is devoted to rigorous derivation of macroscopic mathematical models as a homogenization of exact mathematical models at the microscopic level. The idea is quite natural: one first must describe the joint motion of the elastic skeleton and the fluid in pores at the microscopic level by means of classical continuum mechanics, and then use homogenization to find appropriate approximation models [...]

### Fields of interest

Partial Differential Equations; Mathematical Methods in Physics; Mechanics

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-94-6239-014-0](http://www.springer.com/978-94-6239-014-0)

### Hardcover

2014. XXXIII, 421 p. 25 illus., 3 illus. in color. (Atlantis Studies in Differential Equations, Vol. 1)  
ISBN 978-94-6239-014-0

**Due: November 30, 2013**

M. Corazza, Ca' Foscari University of Venice, Venezia, Italy; C. Pizzi, Ca' Foscari University of Venice, Venezia, Italy (Eds.)

## Mathematical and Statistical Methods for Actuarial Sciences and Finance

The interaction between mathematicians and statisticians has been shown to be an effective approach for dealing with actuarial, insurance and financial problems, both from an academic perspective and from an operative one. The collection of original papers presented in this volume pursues precisely this purpose. It covers a wide variety of subjects in actuarial, insurance and finance fields, all treated in the light of the successful cooperation between the above two quantitative approaches. The papers published in this volume present theoretical and methodological contributions and their applications to real contexts. With respect to the theoretical and methodological contributions, some[...]

### Features

The interaction between mathematicians and statisticians has been shown to be an effective approach for dealing with actuarial, insurance and financial problems, both from an academic perspective and from an operative one. The collection of original papers presented in this volume pursues precisely this purpose. It covers a wide variety of subjects in actuarial, insurance and finance fields, all treated in the [...]

### Contents

Weak form efficiency of selected European stock markets: alternative testing approaches (G. Albano, M. La Rocca, C. Perna).- An empirical comparison of variable selection methods in competing risks model (A. Amendola, M. Restaino, L. Sensini).- A comparison between different numerical schemes for the valuation of unit-linked contracts embedding a surrender option (A.R. Bacinello, P. Millosovich, A. Montealegre).- Dynamic tracking error with shortfall control using stochastic programming (D. Barro, E. Canestrelli).- Firm's volatility risk under microstructure noise (F. Barsotti, S.[...])

### Fields of interest

Quantitative Finance; Actuarial Sciences; Statistics for Business, Economics, Mathematical Finance, Insurance; Finance / Banking; Financial Economics

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-02498-1](http://www.springer.com/978-3-319-02498-1)

### Hardcover

2014. Approx. 325 p.  
ISBN 978-3-319-02498-1

**Due: December 31, 2013**

J. Milton, T. Ohira, Sony Computer Science Laboratories, Inc., Tokyo, Japan

## Mathematics as a Laboratory Tool

Dynamics, Delays and Noise

This introductory textbook is based on the premise that the foundation of good science is good data. The educational challenge addressed by this introductory textbook is how to present a sampling of the wide range of mathematical tools available for laboratory research to well-motivated students with a mathematical background limited to an introductory course in calculus.

### Features

The importance of mathematics in the undergraduate biology curriculum is ever increasing, as is the importance of biology within the undergraduate applied mathematics curriculum. This ambitious forward thinking book strives to make concrete connections between the two fields at the undergraduate level, bringing in a wide variety of mathematical methods such as signal processing, systems identification, [...]

### Contents

Science and the mathematics of black boxes.- The mathematics of change.- Equilibria and steady states.- Stability.- Fixed-points: Creation and destruction.- Transient dynamics.- Frequency domain I: Bode plots and transfer functions.- Frequency domain II: Fourier analysis and power spectra.- Feedback and control systems.- Oscillations.- Beyond limit cycles.- Random perturbations.- Noisy dynamical systems.- Random walkers.- Thermodynamic perspectives.

### Fields of interest

Mathematical and Computational Biology; Neurology; Cell Physiology

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-1-4614-9095-1](http://www.springer.com/978-1-4614-9095-1)

### Hardcover

2014. X, 488 p. 159 illus., 4 illus. in color. ISBN 978-1-4614-9095-1

**Due: October 31, 2013**

W.D. Wallis

## Mathematics in the Real World

Mathematics in the Real World is a self-contained, accessible introduction to the world of mathematics for non-technical majors. With a focus on everyday applications and context, the topics in this textbook build in difficulty and are presented sequentially, starting with a brief review of sets and numbers followed by an introduction to elementary statistics, models, and graph theory. Data and identification numbers are then covered, providing the pathway to voting and finance. Each subject is covered in a concise and clear fashion through the use of real-world applications and the introduction of relevant terminology. Many sample problems – both writing exercises and multiple-choice [...]

### Features

Mathematics in the Real World is a self-contained, accessible introduction to the world of mathematics for non-technical majors. With a focus on everyday applications and context, the topics in this textbook build in difficulty and are presented sequentially, starting with a brief review of sets and numbers followed by an introduction to elementary statistics, models, and graph theory. Data and [...]

### Contents

Preface.- Part I Introduction.- Math is Everywhere.- Numbers and Sets.- Counting.- Part II Statistical Ideas.- Collecting Data.- Measuring Data.- Normal.- Sampling, Predicting.- Multivariate Situations.- Probability.- Part III Graph Models.- Euler.- Hamilton.- Trees.- Scheduling, Critical Paths.- Coloring, Handshakes.- Part IV Data.- Identification Numbers.- Data Transmission.- Encryption; The Hat Game.- Part V Voting.- Voting Systems.- Messing with Systems.- Electing a President.- Part VI The Exponential World.- Finance.- Populations and Radioactivity.

### Fields of interest

Mathematics in the Humanities and Social Sciences; Graph Theory; Mathematics (general)

### Target groups

Lower undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-1-4614-8528-5](http://www.springer.com/978-1-4614-8528-5)

### Hardcover

2013. XV, 270 p. 205 illus. ISBN 978-1-4614-8528-5

**usually dispatched within 3 to 5 business days  
October 31, 2013**

H.-J. Bungartz, Technische Universität München, Munich, Germany; S. Zimmer, University of Stuttgart, Stuttgart, Germany; M. Buchholz, Realtime Technology AG, Munich, Germany; D. Pflüger, University of Stuttgart, Stuttgart, Germany

## Modeling and Simulation

An Application-Oriented Introduction

This book provides an introduction to mathematical and computer-oriented modeling and to simulation as a universal methodology. It therefore addresses various model classes and their derivations. And it demonstrates the diversity of approaches that can be taken: be it discrete or continuous, deterministic or stochastic. A common underlying theme throughout the book are the means in which one obtains practical simulation results from these different abstract models. Subsequent to a brief review of the mathematical tools that are required, the concept of the simulation pipeline, "from model derivation to the simulation", is applied to 14 example scenarios from diverse fields such as [...]

### Features

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### Contents

1 Introduction.- 2 The necessary instruments in brief.- Part I Playing – deciding – planning: A modeling warm-up.- 3 Game theory.- 4 Group decisions.- 5 Schedules.- 6 Wiener processes.- Part II Traffic on highways and data highways: A trip through the simulation pipeline.- 7 Macroscopic simulation of traffic.- 8 Microscopic simulation of traffic.- 9 Stochastic traffic simulations.- Part III Dynamic systems: Cause, effect and interaction.- 10 Population dynamics.- 11 Controllers.- 12 Chaos theory.- Part IV Physics on the computer: The switch to number crunchers.- 13 Molecular dynamics.- [...]

### Fields of interest

Computational Science and Engineering; Computational Mathematics and Numerical Analysis; Mathematical Modeling and Industrial Mathematics; Simulation and Modeling

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-3-642-39523-9](http://www.springer.com/978-3-642-39523-9)

### Hardcover

2014. XIV, 413 p. 158 illus., 6 illus. in color. (Springer Undergraduate Texts in Mathematics and Technology) ISBN 978-3-642-39523-9

**Due: November 30, 2013**

M. Audin, Université Louis Pasteur, Strasbourg Cedex, France; M. Damian

## Morse Theory and Floer Homology

This book is an introduction to modern methods of symplectic topology. It is devoted to explaining the solution of an important problem originating from classical mechanics: the 'Arnold conjecture', which asserts that the number of 1-periodic trajectories of a non-degenerate Hamiltonian system is bounded below by the dimension of the homology of the underlying manifold. The first part is a thorough introduction to Morse theory, a fundamental tool of differential topology. It defines the Morse complex and the Morse homology, and develops some of their applications. Morse homology also serves a simple model for Floer homology, which is covered in the second part. Floer homology is an[...]

### Features

This book is an introduction to modern methods of symplectic topology. It is devoted to explaining the solution of an important problem originating from classical mechanics: the 'Arnold conjecture', which asserts that the number of 1-periodic trajectories of a non-degenerate Hamiltonian system is bounded below by the dimension of the homology of the underlying manifold. The first part is a thorough [...]

### Contents

Introduction to Part I.- Morse Functions.- Pseudo-Gradients.- The Morse Complex.- Morse Homology, Applications.- Introduction to Part II.- What You Need To Know About Symplectic Geometry.- The Arnold Conjecture and the Floer Equation.- The Maslov Index.- Linearization and Transversality.- Spaces of Trajectories.- From Floer To Morse.- Floer Homology: Invariance.- Elliptic Regularity.- Technical Lemmas.- Exercises for the Second Part.- Appendices: What You Need to Know to Read This Book.

### Fields of interest

Geometry; Differential Geometry; Algebraic Topology; Manifolds and Cell Complexes (incl. Diff. Topology)

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4471-5495-2](http://www.springer.com/978-1-4471-5495-2)

Distribution rights for France: EDP Sciences, Les Ulis Cedex A, France

### Softcover

Original French edition published by EDP Sciences, Les Ulis Cedex A, France, 2010  
2014. XIV, 574 p. 114 illus. (Universitext)  
ISBN 978-1-4471-5495-2

**Due: October 31, 2013**

V. Chulaevsky, Y. Suhov

## Multi-scale Analysis for Random Quantum Systems with Interaction

The study of quantum disorder has generated considerable research activity in mathematics and physics over past 40 years. While single-particle models have been extensively studied at a rigorous mathematical level, little was known about systems of several interacting particles, let alone systems with positive spatial particle density. Creating a consistent theory of disorder in multi-particle quantum systems is an important and challenging problem that largely remains open. Multi-scale Analysis for Random Quantum Systems with Interaction presents the progress that had been recently achieved in this area. The main focus of the book is on a rigorous derivation of the multi-particle[...]

### Features

The study of quantum disorder has generated considerable research activity in mathematics and physics over past 40 years. While single-particle models have been extensively studied at a rigorous mathematical level, little was known about systems of several interacting particles, let alone systems with positive spatial particle density. Creating a consistent theory of disorder in multi-particle quantum [...]

### Contents

Preface.- Part I Single-particle Localisation.- A Brief History of Anderson Localization.- Single-Particle MSA Techniques.- Part II Multi-particle Localization.- Multi-particle Eigenvalue Concentration Bounds.- Multi-particle MSA Techniques.- References.- Index.

### Fields of interest

Functional Analysis; Mathematical Methods in Physics; Probability Theory and Stochastic Processes; Applications of Mathematics; Solid State Physics; Spectroscopy and Microscopy

### Target groups

Research

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8225-3](http://www.springer.com/978-1-4614-8225-3)

### Hardcover

2014. XI, 238 p. 5 illus. (Progress in Mathematical Physics, Vol. 65)  
ISBN 978-1-4614-8225-3

**usually dispatched within 3 to 5 business days  
October 31, 2013**

J. Noguchi, J. Winkelmann, Ruhr-Universität Bochum, Bochum, Germany

## Nevanlinna Theory in Several Complex Variables and Diophantine Approximation

The aim of this book is to provide a comprehensive account of higher dimensional Nevanlinna theory and its relations with Diophantine approximation theory for graduate students and interested researchers. This book with nine chapters systematically describes Nevanlinna theory of meromorphic maps between algebraic varieties or complex spaces, building up from the classical theory of meromorphic functions on the complex plane with full proofs in Chap. 1 to the current state of research. Chapter 2 presents the First Main Theorem for coherent ideal sheaves in a very general form. With the preparation of plurisubharmonic functions, how the theory to be generalized in a higher dimension is[...]

### Features

The aim of this book is to provide a comprehensive account of higher dimensional Nevanlinna theory and its relations with Diophantine approximation theory for graduate students and interested researchers. This book with nine chapters systematically describes Nevanlinna theory of meromorphic maps between algebraic varieties or complex spaces, building up from the classical theory of meromorphic [...]

### Contents

Nevanlinna Theory of Meromorphic Functions.- First Main Theorem.- Differentiably Non-Degenerate Meromorphic Maps.- Entire Curves into Algebraic Varieties.- Semi-Abelian Varieties.- Entire Curves into Semi-Abelian Varieties.- Kobayashi Hyperbolicity.- Nevanlinna Theory over Function Fields.- Diophantine Approximation.- Bibliography.- Index.- Symbols

### Fields of interest

Functions of a Complex Variable; Several Complex Variables and Analytic Spaces; Algebraic Geometry; Number Theory

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-4-431-54570-5](http://www.springer.com/978-4-431-54570-5)

### Hardcover

2014. XII, 412 p. 6 illus. (Grundlehren der mathematischen Wissenschaften, Vol. 350)  
ISBN 978-4-431-54570-5

**Due: November 30, 2013**

L.C. Ciungu, University of Iowa, Iowa City, USA

## Non-commutative Multiple-Valued Logic Algebras

This monograph provides a self-contained and easy-to-read introduction to non-commutative multiple-valued logic algebras; a subject which has attracted much interest in the past few years because of its impact on information science, artificial intelligence and other subjects. A study of the newest results in the field, the monograph includes treatment of pseudo-BCK algebras, pseudo-hoops, residuated lattices, bounded divisible residuated lattices, pseudo-MTL algebras, pseudo-BL algebras and pseudo-MV algebras. It provides a fresh perspective on new trends in logic and algebras in that algebraic structures can be developed into fuzzy logics which connect quantum mechanics, [...]

### Features

This monograph provides a self-contained and easy-to-read introduction to non-commutative multiple-valued logic algebras; a subject which has attracted much interest in the past few years because of its impact on information science, artificial intelligence and other subjects. A study of the newest results in the field, the monograph includes treatment of pseudo-BCK algebras, pseudo-hoops, residuated [...]

### Contents

Pseudo-BCK algebras.- Pseudo-hoops.- Residuated lattices.- Other non-commutative multiple-valued logic algebras.- Classes of non-commutative residuated structures.- States on multiple-valued logic algebras.- Measures on pseudo-BCK algebras.- Generalized states on residuated structures.- Pseudo-hoops with internal states.

### Fields of interest

Mathematical Logic and Foundations; Order, Lattices, Ordered Algebraic Structures; Probability Theory and Stochastic Processes; Measure and Integration

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01588-0](http://www.springer.com/978-3-319-01588-0)

### Hardcover

2014. XIV, 276 p. 8 illus. (Springer Monographs in Mathematics)

ISBN 978-3-319-01588-0

**usually dispatched within 3 to 5 business days**

Th.C. Sideris

## Ordinary Differential Equations and Dynamical Systems

This book is a mathematically rigorous introduction to the beautiful subject of ordinary differential equations for beginning graduate or advanced undergraduate students. Students should have a solid background in analysis and linear algebra. The presentation emphasizes commonly used techniques without necessarily striving for completeness or for the treatment of a large number of topics. The first half of the book is devoted to the development of the basic theory: linear systems, existence and uniqueness of solutions to the initial value problem, flows, stability, and smooth dependence of solutions upon initial conditions and parameters. Much of this theory also serves as the [...]

### Features

This book is a mathematically rigorous introduction to the beautiful subject of ordinary differential equations for beginning graduate or advanced undergraduate students. Students should have a solid background in analysis and linear algebra. The presentation emphasizes commonly used techniques without necessarily striving for completeness or for the treatment of a large number of topics. The first half of [...]

### Fields of interest

Ordinary Differential Equations

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-94-6239-020-1](http://www.springer.com/978-94-6239-020-1)

### Hardcover

2013. IX, 227 p. 11 illus. (Atlantis Studies in Differential Equations, Vol. 2)

ISBN 978-94-6239-020-1

**Due: October 31, 2013**

Th. Koshy, Framingham State University, Framingham, USA

## Pell and Pell-Lucas Numbers with Applications

Pell and Pell-Lucas numbers, like the well-known Fibonacci and Catalan numbers, continue to intrigue the mathematical world with their beauty and applicability. They offer opportunities for experimentation, exploration, conjecture, and problem-solving techniques, connecting the fields of analysis, geometry, trigonometry, and various areas of discrete mathematics, number theory, graph theory, linear algebra, and combinatorics. Pell and Pell-Lucas numbers belong to an extended Fibonacci family as a powerful tool for extracting numerous interesting properties of a vast array of number sequences. A key feature of this work is the historical flavor that is interwoven into the [...]

### Features

Pell and Pell-Lucas numbers, like the well-known Fibonacci and Catalan numbers, continue to intrigue the mathematical world with their beauty and applicability. They offer opportunities for experimentation, exploration, conjecture, and problem-solving techniques, connecting the fields of analysis, geometry, trigonometry, and various areas of discrete mathematics, number theory, graph theory, linear [...]

### Contents

Fundamentals.- Pell's Equation.- Continued Fractions.- Pythagorean Triples. - Triangular Numbers.- Square-Triangular Numbers.- Pell and Pell-Lucas Numbers.- Additional Pell identities. - Pascal's Triangle and the Pell Family.- Pell Sums and Products.- Generating Functions for the Pell Family.- Pell Walks.- Pell Triangles. - Pell and Pell-Lucas Polynomials.- Pellometry.- Pell Radicals.- Pell Tilings. - Pell-Fibonacci Bridges. - An Extended Pell Family.- Chebyshev Polynomials.- Chebyshev Tilings.- Bibliography.- Appendix

### Fields of interest

Number Theory; Mathematical Logic and Foundations; History of Mathematics

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-1-4614-8488-2](http://www.springer.com/978-1-4614-8488-2)

### Hardcover

2014. Approx. 400 p. 30 illus.

ISBN 978-1-4614-8488-2

**Due: November 11, 2013**

T. Ma, Sichuan University, Sichuan, China (P.R.); S. Wang, Indiana University, Bloomington, USA

## Phase Transition Dynamics

This book is an introduction to a comprehensive and unified dynamic transition theory for dissipative systems and to applications of the theory to a range of problems in the nonlinear sciences. The main objectives of this book are to introduce a general principle of dynamic transitions for dissipative systems, to establish a systematic dynamic transition theory, and to explore the physical implications of applications of the theory to a range of problems in the nonlinear sciences. The basic philosophy of the theory is to search for a complete set of transition states, and the general principle states that dynamic transitions of all dissipative systems can be classified into three[...]

### Features

This book is an introduction to a comprehensive and unified dynamic transition theory for dissipative systems and to applications of the theory to a range of problems in the nonlinear sciences. The main objectives of this book are to introduce a general principle of dynamic transitions for dissipative systems, to establish a systematic dynamic transition theory, and to explore the physical implications of [...]

### Contents

User's Guide.- General Theory of Phase Transition Dynamics.- Dynamic Transition Theory.- Equilibrium Phase Transition in Statistical Physics.- Fluid Dynamics.- Geophysical Fluid Dynamics and Climate Dynamics.- Dynamical Transitions in Chemistry and Biology.- References.

### Fields of interest

Partial Differential Equations; Fluid- and Aerodynamics; Complex Systems

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8962-7](http://www.springer.com/978-1-4614-8962-7)

### Hardcover

2014. XX, 558 p. 153 illus., 2 illus. in color.  
ISBN 978-1-4614-8962-7

**Due: October 31, 2013**

P. Griffiths, Princeton University, Princeton, USA; J. Morgan, Stony Brook University, Stony Brook, USA

## Rational Homotopy Theory and Differential Forms

This completely revised and corrected version of the well-known Florence notes circulated by the authors together with E. Friedlander examines basic topology, emphasizing homotopy theory. Included is a discussion of Postnikov towers and rational homotopy theory. This is then followed by an in-depth look at differential forms and de Tham's theorem on simplicial complexes. In addition, Sullivan's results on computing the rational homotopy type from forms is presented. New to the Second Edition: \*Fully-revised appendices including an expanded discussion of the Hirsch lemma\* Presentation of a natural proof of a Serre spectral sequence result \*Updated content throughout the book, [...]

### Features

"Rational homotopy theory is today one of the major trends in algebraic topology. Despite the great progress made in only a few years, a textbook properly devoted to this subject still was lacking until now... The appearance of the text in book form is highly welcome, since it will satisfy the need of many interested people. Moreover, it contains an approach and point of view that do not appear explicitly in [...]

### Contents

1 Introduction.- 2 Basic Concepts.- 3 CW Homology Theorem.- 4 The Whitehead Theorem and the Hurewicz Theorem.- 5 Spectral Sequence of a Fibration.- 6 Obstruction Theory.- 7 Eilenberg-MacLane Spaces, Cohomology, and Principal Fibrations.- 8 Postnikov Towers and Rational Homotopy Theory.- 9 deRham's theorem for simplicial complexes.- 10 Differential Graded Algebras.- 11 Homotopy Theory of DGAs.- 12 DGAs and Rational Homotopy Theory.- 13 The Fundamental Group.- 14 Examples and Computations.- 15 Functoriality.- 16 The Hirsch Lemma.- 17 Quillen's work on Rational Homotopy Theory.- 18 [...]

### Fields of interest

Algebraic Topology; Category Theory, Homological Algebra; Commutative Rings and Algebras; Topology; Algebra

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8467-7](http://www.springer.com/978-1-4614-8467-7)

### Hardcover

2013. XI, 224 p. 46 illus. (Progress in Mathematics, Vol. 16)

ISBN 978-1-4614-8467-7

**Due: October 31, 2013**

J.P. Morais, Universidade de Aveiro, Aveiro, Portugal; S. Georgiev, University of Sofia "St Kliment Ohridski, Sofia, Bulgaria; W. Sprößig, TU Bergakademie Freiberg, Freiberg, Germany

## Real Quaternionic Calculus Handbook

Real quaternion analysis is a multi-faceted subject. Created to describe phenomena in special relativity, electrodynamics, spin etc., it has developed into a body of material that interacts with many branches of mathematics, such as complex analysis, harmonic analysis, differential geometry, and differential equations. It is also a ubiquitous factor in the description and elucidation of problems in mathematical physics. In the meantime real quaternion analysis has become a well established branch in mathematics and has been greatly successful in many different directions. This book is based on concrete examples and exercises rather than general theorems, thus making it suitable for an [...]

### Features

Real quaternion analysis is a multi-faceted subject. Created to describe phenomena in special relativity, electrodynamics, spin etc., it has developed into a body of material that interacts with many branches of mathematics, such as complex analysis, harmonic analysis, differential geometry, and differential equations. It is also a ubiquitous factor in the description and elucidation of problems in [...]

### Contents

1 An introduction to quaternions.- 2 Quaternions and spatial rotation.- 3 Quaternion sequences.- 4 Quaternion series and infinite products.- 5 Exponents and logarithms.- 6 Trigonometric functions.- 7 Hyperbolic functions.- 8 Inverse hyperbolic and trigonometric functions.- 9 Quaternion matrices.- 10 Monomials, polynomials and binomials.- 11 Solutions.- Bibliography.- Index.

### Fields of interest

Non-associative Rings and Algebras; Functions of a Complex Variable; Combinatorics; Linear and Multilinear Algebras, Matrix Theory; Geometry

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-0348-0621-3](http://www.springer.com/978-3-0348-0621-3)

### Softcover

2014. VIII, 200 p.

ISBN 978-3-0348-0621-3

**Due: January 31, 2014**

A. Paprotny, prudsys AG, Berlin, Germany; M. Thess, prudsys AG, Chemnitz, Germany

## Realtime Data Mining

Self-Learning Techniques for Recommendation Engines

Describing novel mathematical concepts for recommendation engines, *Realtime Data Mining: Self-Learning Techniques for Recommendation Engines* features a sound mathematical framework unifying approaches based on control and learning theories, tensor factorization, and hierarchical methods. Furthermore, it presents promising results of numerous experiments on real-world data. The area of realtime data mining is currently developing at an exceptionally dynamic pace, and realtime data mining systems are the counterpart of today's "classic" data mining systems. Whereas the latter learn from historical data and then use it to deduce necessary actions, realtime analytics systems learn[...]

### Features

Describing novel mathematical concepts for recommendation engines, *Realtime Data Mining: Self-Learning Techniques for Recommendation Engines* features a sound mathematical framework unifying approaches based on control and learning theories, tensor factorization, and hierarchical methods. Furthermore, it presents promising results of numerous experiments on real-world data. The area of realtime [...]

### Contents

1 Brave New Realtime World – Introduction.- 2 Strange Recommendations? – On The Weaknesses Of Current Recommendation Engines.- 3 Changing Not Just Analyzing – Control Theory And Reinforcement Learning.- 4 Recommendations As A Game – Reinforcement Learning For Recommendation Engines.- 5 How Engines Learn To Generate Recommendations – Adaptive Learning Algorithms.- 6 Up The Down Staircase – Hierarchical Reinforcement Learning.- 7 Breaking Dimensions – Adaptive Scoring With Sparse Grids.- 8 Decomposition In Transition - Adaptive Matrix Factorization.- 9 Decomposition In Transition Ii - [...]

### Fields of interest

Computational Science and Engineering; Mathematical Applications in Computer Science; Mathematical Software

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01320-6](http://www.springer.com/978-3-319-01320-6)

### Hardcover

2014. XX, 277 p. 62 illus., 9 illus. in color. (Applied and Numerical Harmonic Analysis)  
ISBN 978-3-319-01320-6

**Due: December 19, 2013**

K.P. Hart, Technische Universiteit, Delft, Netherlands; P. Simon, J. Mill, Free University, Amsterdam, Netherlands (Eds.)

## Recent Progress in General Topology III

The book presents surveys describing recent developments in most of the primary subfields of General Topology, and its applications to Algebra and Analysis during the last decade, following the previous editions (North Holland, 1992 and 2002). The book was prepared in connection with the Prague Topological Symposium, held in 2011. During the last 10 years the focus in General Topology changed and therefore the selection of topics differs from that chosen in 2002. The following areas experienced significant developments: Fractals, Coarse Geometry/Topology, Dimension Theory, Set Theoretic Topology and Dynamical Systems.

### Features

The book presents surveys describing recent developments in most of the primary subfields of General Topology, and its applications to Algebra and Analysis during the last decade, following the previous editions (North Holland, 1992 and 2002). The book was prepared in connection with the Prague Topological Symposium, held in 2011. During the last 10 years the focus in General Topology changed and therefore [...]

### Contents

Topological Homogeneity.- Some Recent Progress Concerning Topology of Fractals.- A biased view of topology as a tool in functional analysis.- Large scale versus small scale.- Descriptive aspects of Rosenthal compacta.- Minimality conditions in topological groups.- Set-Theoretic update on Topology.- Topics in Dimension Theory.- Representations of dynamical systems on Banach spaces.- Generalized metrizable spaces.- Permanence in Coarse Geometry.- Selections and Hyperspaces.- Continuum Theory.- Almost disjoint families and topology.- Some Topics in Geometric Topology II.- Topological[...]

### Fields of interest

Topology; Topological Groups, Lie Groups; Functional Analysis; Mathematical Logic and Foundations

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-94-6239-023-2](http://www.springer.com/978-94-6239-023-2)

### Hardcover

2013. VII, 882 p. 34 illus., 1 illus. in color.  
ISBN 978-94-6239-023-2

**Due: October 31, 2013**

A. Quarteroni, Politecnico di Milano, Milano, Italy; G. Rozza, SISSA MathLab, Trieste, Italy (Eds.)

## Reduced Order Methods for modeling and computational reduction

The monograph deals with the state of the art of current advances and developments in reduced order methods for modeling and computational reduction of complex parametrized systems, held by ordinary and/or partial differential equations, with a special emphasis on real time computing techniques. All the contributions in the book have been peer-reviewed and contain examples of applications in computational mechanics. Model reduction topics are emphasized in several themes: 1. design, optimization, and control theory in real-time with applications in engineering; 2. data assimilation, geometry registration, and parameter estimation with a special attention to real-time computing in[...]

### Features

The monograph deals with the state of the art of current advances and developments in reduced order methods for modeling and computational reduction of complex parametrized systems, held by ordinary and/or partial differential equations, with a special emphasis on real time computing techniques. All the contributions in the book have been peer-reviewed and contain examples of applications in computational [...]

### Contents

1 W. H. A. Schilders, A. Lutowska: A novel approach to model order reduction for coupled multiphysics problems.- 2 A. C. Ionita, A. C. Antoulas: Case study. Parametrized Reduction using Reduced-Basis and the Loewner Framework.- 3 M. Bebendorf, Y. Maday, B. Stamm: Comparison of some reduced representation approximations.- 4 H. Antil, M. Heinkenschloss, D. C. Sorensen: Application of the Discrete Empirical Interpolation Method to Reduced Order Modeling of Nonlinear and Parametric System.- 5 K. Urban, S. Volkwein, O. Zeeb: Greedy Sampling using Nonlinear Optimization.- 6 P. Benner, L.[...]

### Fields of interest

Computational Mathematics and Numerical Analysis; Numeric Computing; Appl. Mathematics / Computational Methods of Engineering; Mathematical Modeling and Industrial Mathematics; Continuum Mechanics and Mechanics of Materials; Numerical and Computational Physics

### Target groups

Professional/practitioner

### Type of publication

Contributed volume

More on [www.springer.com/978-3-319-02089-1](http://www.springer.com/978-3-319-02089-1)

### Hardcover

2014. Approx. 300 p. (MS&A, Vol. 8)  
ISBN 978-3-319-02089-1

**Due: November 30, 2013**

P. Pucci, Università Perugia, Perugia, Italy; V.D. Radulescu, University of Craiova, Craiova, Romania; H. Weinberger, University of Minnesota, Minneapolis, USA (Eds.)

## Selected Papers of James Serrin

These two volumes present the collected works of James Serrin. He has done seminal work on a number of the basic tools needed for the study of solutions of partial differential equations. Many of them have been and are being applied to solving problems in science and engineering. Among the areas which he studied are maximum principle methods and related phenomena such as Harnack's inequality, the compact support principle, dead cores and bursts, free boundary problems, phase transitions, the symmetry of solutions, boundary layer theory, singularities, and fine regularity properties. The volumes include commentaries by leading mathematicians to indicate the significance of the [...]

### Features

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### Fields of interest

History of Mathematics

### Target groups

Research

### Type of publication

Collected works

More on [www.springer.com/978-3-0348-0685-5](http://www.springer.com/978-3-0348-0685-5)

### Hardcover

2013. 1600 p. 2 volume-set. (Contemporary Mathematicians)

ISBN 978-3-0348-0685-5

**Due: February 28, 2014**

Š. Nečasová, M. Pokorný, Charles University, Prague 8, Czech Republic; V. Šverák, University of Minnesota, Minneapolis, USA (Eds.)

## Selected Works of Jindřich Nečas

PDEs, Continuum Mechanics and Regularity

The book collects the most significant contributions of the outstanding Czech mathematician Jindřich Nečas, who was honoured with the Order of Merit of the Czech Republic by President Václav Havel. Starting with Nečas's brief biography and short comments on his role in the beginnings of modern PDE research in Prague, the book then follows the periods of his research career. The first part is devoted to the linear theory of partial differential equations. Its topics include the variational approach to linear boundary value problems and the Rellich - Nečas inequalities, together with their applications to boundary regularity. The second part is concerned with the regularity for [...]

### Features

The book collects the most significant contributions of the outstanding Czech mathematician Jindřich Nečas, who was honoured with the Order of Merit of the Czech Republic by President Václav Havel. Starting with Nečas's brief biography and short comments on his role in the beginnings of modern PDE research in Prague, the book then follows the periods of his research career. The first part is devoted to the [...]

### Contents

1 Introduction.- 2 Short Biography of J. Nečas.- 3 Complete List of Nečas' works.- 4 J. Nečas in the early 1960s.- 5 J. Nečas and the Prague School of PDE.- 6 Linear Elliptic Operators.- 7.1 Regularity for Non-linear Equations and Systems.- 7.2 Contribution of Mingione and Kristensen.- 8. Non-linear Functional Analysis, Calculus of Variations.- 9. Solid Mechanics, Elasticity, Thermoelasticity, and Plasticity.- 9.1 Mechanics of Solids.- 9.2 The Contribution of Jindřich Nečas to the Development of the Theory of Solvability of Contact Problems.- 10 Fluid Mechanics.- 11 Comments and [...]

### Fields of interest

Partial Differential Equations; Mathematical Physics; Mathematical Methods in Physics

### Target groups

Research

### Type of publication

Collected works

More on [www.springer.com/978-3-0348-0230-7](http://www.springer.com/978-3-0348-0230-7)

### Hardcover

2013. IV, 224 p. 49 illus., 17 illus. in color. (Advances in Mathematical Fluid Mechanics)

ISBN 978-3-0348-0230-7

**Due: November 30, 2013**

Y. Eidelman, I. Gohberg, Tel Aviv University, Ra'anana, Israel; I. Haimovici, Tel Aviv University, Tel Aviv, Israel

## Separable Type Representations of Matrices and Fast Algorithms

This two-volume work presents a systematic theoretical and computational study of several types of generalizations of separable matrices. The primary focus is on fast algorithms (many of linear complexity) for matrices in semiseparable, quasiseparable, band and companion form. The work examines algorithms of multiplication, inversion and description of eigenstructure and includes a wealth of illustrative examples throughout the different chapters. The first volume consists of four parts. The first part is mainly theoretical in character, introducing and studying the quasiseparable and semiseparable representations of matrices and minimal rank completion problems. Three further [...]

### Features

This two-volume work presents a systematic theoretical and computational study of several types of generalizations of separable matrices. The primary focus is on fast algorithms (many of linear complexity) for matrices in semiseparable, quasiseparable, band and companion form. The work examines algorithms of multiplication, inversion and description of eigenstructure and includes a wealth of illustrative [...]

### Fields of interest

Linear and Multilinear Algebras, Matrix Theory; Numerical Analysis

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-0348-0728-9](http://www.springer.com/978-3-0348-0728-9)

### Hardcover

2013. 788 p. 2 volume-set. (Operator Theory: Advances and Applications, Vol. 234/235)

ISBN 978-3-0348-0728-9

**Due: October 31, 2013**

A. Dasgupta, University of Detroit Mercy, Ann Arbor, USA

## Set Theory

With an Introduction to Real Point Sets

What is a number? What is infinity? What is continuity? What is order? Answers to these fundamental questions obtained by late nineteenth century mathematicians such as Dedekind and Cantor gave birth to Set Theory. This book presents classical set theory in an intuitive but concrete manner. To allow flexibility of topic selection in courses, the book is organized into four largely independent parts with distinct "mathematical flavors." Part I begins with the Dedekind-Peano axioms and ends with the construction of real numbers. The core Cantor-Dedekind theory of cardinals, orders, and ordinals appears in Part II. Part III focuses on the real continuum. Foundational issues and formal[...]

### Features

What is a number? What is infinity? What is continuity? What is order? Answers to these fundamental questions obtained by late nineteenth century mathematicians such as Dedekind and Cantor gave birth to Set Theory. This book presents classical set theory in an intuitive but concrete manner. To allow flexibility of topic selection in courses, the book is organized into four largely independent [...]

### Contents

Part 0 Preliminaries.- 1 Sets, Relations, and Functions.- Part I Dedekind: Numbers.- 2 The Dedekind-Peano Axioms.- 3 Dedekind's Theory of the Continuum.- Postscript I: What Exactly Are the Natural Numbers?.- Part II Cantor: Cardinals, Order, and Ordinals.- 4 Cardinals: Finite, Countable, and Uncountable.- 5 Cardinal Arithmetic and the Cantor Set.- 6 Orders and Order Types.- 7 Dense and Complete Orders.- 8 Well-Orders and Ordinals.- 9 Alephs, Cofinality, and the Axiom of Choice.- 10 Posets, Zorn's Lemma, Ranks, and Trees.- Postscript II: Infinitary Combinatorics.- Part III Real Point[...]

### Fields of interest

Mathematical Logic and Foundations; Analysis; Algebra; Topology; Discrete Mathematics; Logic

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-1-4614-8853-8](http://www.springer.com/978-1-4614-8853-8)

### Hardcover

2014. XXII, 400 p. 1 illus. in color.  
ISBN 978-1-4614-8853-8

**Due: November 30, 2013**

Y.J. Cho, Gyeongsang National University, Chinju, Korea(Rep.);  
T.M. Rassias, National Technical University of Athens, Athens,  
Greece; R. Saadati, Iran University of Science and Technology,  
Behshahr, Iran

## Stability of Functional Equations in Random Normed Spaces

This book discusses the rapidly developing subject of mathematical analysis that deals primarily with stability of functional equations in generalized spaces. The fundamental problem in this subject was proposed by Stan M. Ulam in 1940 for approximate homomorphisms. The seminal work of Donald H. Hyers in 1941 and that of Themistocles M. Rassias in 1978 have provided a great deal of inspiration and guidance for mathematicians worldwide to investigate this extensive domain of research. The book presents a self-contained survey of recent and new results on topics including basic theory of random normed spaces and related spaces; stability theory for new function equations in random normed[...]

### Features

This book discusses the rapidly developing subject of mathematical analysis that deals primarily with stability of functional equations in generalized spaces. The fundamental problem in this subject was proposed by Stan M. Ulam in 1940 for approximate homomorphisms. The seminal work of Donald H. Hyers in 1941 and that of Themistocles M. Rassias in 1978 have provided a great deal of inspiration and guidance [...]

### Contents

Preface.- 1. Preliminaries.- 2. Generalized Spaces.- 3. Stability of Functional Equations in Random Normed Spaces Under Special t-norms.- 4. Stability of Functional Equations in Random Normed Spaces Under Arbitrary t-norms.- 5. Stability of Functional Equations in random Normed Spaces via Fixed Point Method.- 6. Stability of Functional Equations in Non-Archimedean Random Spaces.- 7. Random Stability of Functional Equations Related to Inner Product Spaces.- 8. Random Banach Algebras and Stability Results.

### Fields of interest

Functional Analysis; Optimization; Partial Differential Equations

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8476-9](http://www.springer.com/978-1-4614-8476-9)

### Hardcover

2013. XIX, 246 p. (Springer Optimization and Its Applications, Vol. 86)  
ISBN 978-1-4614-8476-9

**usually dispatched within 3 to 5 business days**

M. Zabarankin, Stevens Institute of Technology, Hoboken, USA;  
S. Uryasev

## Statistical Decision Problems

Selected Concepts and Portfolio Safeguard Case Studies

Statistical Decision Problems presents a quick and concise introduction into the theory of risk, deviation and error measures that play a key role in statistical decision problems. It introduces state-of-the-art practical decision making through twenty-one case studies from real-life applications. The case studies cover a broad area of topics and the authors include links with source code and data, a very helpful tool for the reader. In its core, the text demonstrates how to use different factors to formulate statistical decision problems arising in various risk management applications, such as optimal hedging, portfolio optimization, cash flow matching, classification, and more. The[...]

### Features

Statistical Decision Problems presents a quick and concise introduction into the theory of risk, deviation and error measures that play a key role in statistical decision problems. It introduces state-of-the-art practical decision making through twenty-one case studies from real-life applications. The case studies cover a broad area of topics and the authors include links with source code and data, a [...]

### Contents

1. Random Variables.- 2. Deviation, Risk, and Error Measures.- 3. Probabilistic Inequalities.- 4. Maximum Likelihood Method.- 5. Entropy Maximization.- 6. Regression Models.- 7. Classification.- 8. Statistical Decision Models with Risk and Deviation.- 9. Portfolio Safeguard Case Studies.- Index.- References.

### Fields of interest

Operations Research, Mathematical Programming; Probability Theory and Stochastic Processes; Data Mining and Knowledge Discovery; Optimization; Operation Research / Decision Theory

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8470-7](http://www.springer.com/978-1-4614-8470-7)

### Hardcover

2013. XIV, 247 p. 9 illus., 4 illus. in color. (Springer Optimization and Its Applications, Vol. 85)  
ISBN 978-1-4614-8470-7

**Due: October 31, 2013**

N.L. Komarova, University of California, Irvine, Irvine, USA; D. Wodarz, University of California, Irvine, Irvine, USA

## Targeted Cancer Treatment in Silico

Small Molecule Inhibitors and Oncolytic Viruses

Countless medical researchers over the past century have been occupied by the search for a cure of cancer. So far, they have developed and implemented a wide range of treatment techniques, including surgery, chemo- and radiotherapy, antiangiogenic drugs, small molecule inhibitors, and oncolytic viruses. However, patterns of these treatments' effectiveness remain largely unclear, and a better understanding of how cancer therapies work has become a key research goal. *Cancer Treatment in Silico* provides the first in-depth study of approaching this understanding by modeling cancer treatments, both mathematically and through computer simulations. The main goal of this book is to help expose[...]

### Features

This monograph provides the first in-depth study of how mathematical and computational approaches can be used to advance our understanding of cancer therapies and to improve treatment design and outcome. Over the past century, the search for a cancer cure has been a primary occupation of medical researchers. So far, it has led to a wide range of treatment techniques, including surgery, chemo- and [...]

### Contents

Background and Scope of the Book.- Part I Treatment of Cancer with Small Molecule Inhibitors.- An Introduction to Small Molecule Inhibitors and Chronic Myeloid Leukemia.- Basic Dynamics of Chronic Myeloid Leukemia During Imatinib Treatment.- Stochastic Modeling of Cellular Growth, Treatment, and Resistance Generation.- Evolutionary Dynamics of Drug Resistant Mutants in Targeted Treatment of CML.- Effect of Cellular Quiescence on the Evolution of Drug Resistance in CML.- Combination Therapies: Short term versus Long term Strategies.- Cross Resistance: Treatment and Modeling.- [...]

### Fields of interest

Physiological, Cellular and Medical Topics; Cancer Research; Mathematical and Computational Biology; Oncology; Genetics and Population Dynamics; Applications of Mathematics

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8300-7](http://www.springer.com/978-1-4614-8300-7)

### Hardcover

2013. XV, 227 p. 71 illus., 26 illus. in color. (Modeling and Simulation in Science, Engineering and Technology)

ISBN 978-1-4614-8300-7

**Due: October 31, 2013**

V. Nazaiinskii, Russian Academy of Sciences, Moscow, Russian Federation; B.-W. Schulze, B. Sternin, Peoples' Friendship University of Russia, Moscow, Russian Federation

## The Localization Problem in Index Theory of Elliptic Operators

The book deals with the localization approach to the index problem for elliptic operators. Localization ideas have been widely used for solving various specific index problems for a long time, but the fact that there is actually a fundamental localization principle underlying all these solutions has mostly passed unnoticed. The ignorance of this general principle has often necessitated using various artificial tricks and hindered the solution of new important problems in index theory. So far, the localization principle has been only scarcely covered in journal papers and not covered at all in monographs. The suggested book is intended to fill the gap. So far, it is the first and only[...]

### Features

This book deals with the localization approach to the index problem for elliptic operators. Localization ideas have been widely used for solving various specific index problems for a long time, but the fact that there is actually a fundamental localization principle underlying all these solutions has mostly passed unnoticed. The ignorance of this general principle has often necessitated using various [...]

### Contents

Preface.- Introduction.- 0.1 Basics of Elliptic Theory.- 0.2 Surgery and the Superposition Principle.- 0.3 Examples and Applications.- 0.4 Bibliographical Remarks.- Part I: Superposition Principle.- 1 Superposition Principle for the Relative Index.- 1.1 Collar Spaces.- 1.2 Proper Operators and Fredholm Operators.- 1.3 Superposition Principle.- 2 Superposition Principle for K-Homology.- 2.1 Preliminaries.- 2.2 Fredholm Modules and K-Homology.- 2.3 Superposition Principle.- 2.4 Fredholm Modules and Elliptic Operators.- 3 Superposition Principle for KK-Theory.- 3.1 Preliminaries.- 3.2[...]

### Fields of interest

Global Analysis and Analysis on Manifolds; K-Theory; Functional Analysis; Partial Differential Equations

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-0348-0509-4](http://www.springer.com/978-3-0348-0509-4)

### Softcover

2014. VIII, 118 p. 37 illus. (Pseudo-Differential Operators, Vol. 10)

ISBN 978-3-0348-0509-4

**Due: November 30, 2013**

D. Simchi-Levi, Massachusetts Institute of Technology, Cambridge, USA; X. Chen, University of Illinois, Urbana-Champaign, Urbana, USA; J. Bramel

## The Logic of Logistics

Theory, Algorithms, and Applications for Logistics Management

Fierce competition in today's global market provides a powerful motivation for developing ever more sophisticated logistics systems. This book, written for the logistics manager and researcher, presents a survey of the modern theory and application of logistics. The goal of the book is to present the state of the art in the science of logistics management. This third edition includes new chapters on the subjects of game theory, the power of process flexibility, supply chain competition and collaboration. Among the other materials new to the edition are sections on discrete convex analysis and its applications to stochastic inventory models, as well as extended discussions of integrated[...]

### Features

Fierce competition in today's global market provides a powerful motivation for developing ever more sophisticated logistics systems. This book, written for the logistics manager and researcher, presents a survey of the modern theory and application of logistics. The goal of the book is to present the state of the art in the science of logistics management. This third edition includes new chapters on [...]

### Contents

Introduction.- Convexity and Supermodularity.- Game Theory.- Worst-Case Analysis.- Average-Case Analysis.- Mathematical Programming Based Bounds.- Economic Lot Size Models with Constant Demands.- Economic Lot Size Models with Varying Demands.- Stochastic Inventory Models.- Integration of Inventory and Pricing.- Supply Chain Competition and Collaboration Models.- Procurement Contracts.- Process Flexibility.- Supply Chain Planning Models.- Facility Location Models.- The Capacitated VRP with Equal Demands.- The Capacitated VRP with Unequal Demands.- The VRP with Time Window Constraints.- [...]

### Fields of interest

Operations Research, Mathematical Programming; Production / Logistics; Industrial and Production Engineering; Game Theory / Mathematical Methods

### Target groups

Professional/practitioner

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-9148-4](http://www.springer.com/978-1-4614-9148-4)

### Hardcover

2014. XVI, 450 p. 43 illus., 18 illus. in color. (Springer Series in Operations Research and Financial Engineering)

ISBN 978-1-4614-9148-4

**Due: December 31, 2013**

C.S. Hardin, Union College, New York, USA; A.D. Taylor, Union College, Schenectady, USA

## The Mathematics of Coordinated Inference

### A Study of Generalized Hat Problems

Two prisoners are told that they will be brought to a room and seated so that each can see the other. Hats will be placed on their heads; each hat is either red or green. The two prisoners must simultaneously submit a guess of their own hat color, and they both go free if at least one of them guesses correctly. While no communication is allowed once the hats have been placed, they will, however, be allowed to have a strategy session before being brought to the room. Is there a strategy ensuring their release? The answer turns out to be yes, and this is the simplest non-trivial example of a "hat problem." This book deals with the question of how successfully one can predict the value[...]

### Features

Two prisoners are told that they will be brought to a room and seated so that each can see the other. Hats will be placed on their heads; each hat is either red or green. The two prisoners must simultaneously submit a guess of their own hat color, and they both go free if at least one of them guesses correctly. While no communication is allowed once the hats have been placed, they will, however, be allowed [...]

### Contents

1. Introduction.- 2. The Finite Setting.- 3. The Denumerable Setting: Full Visibility.- 4. The Denumerable Setting: One-Way Visibility.- 5. Dual Hat Problems and the Uncountable.- 6. Galvin's Setting: Neutral and Anonymous Predictors.- 7. The Topological Setting.- 8. Universality of the  $\mu$ -Predictor.- 9. Generalizations and Galois-Tukey Connections.- Bibliography.- Index.

### Fields of interest

Mathematical Logic and Foundations; Topology; Game Theory, Economics, Social and Behavioral Sciences

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-3-319-01332-9](http://www.springer.com/978-3-319-01332-9)

### Hardcover

2013. XI, 109 p. (Developments in Mathematics, Vol. 33)  
ISBN 978-3-319-01332-9

**Due: October 31, 2013**

J. Stillwell, University of San Francisco, San Francisco, USA

## The Real Numbers

### An Introduction to Set Theory and Analysis

While most texts on real analysis are content to assume the real numbers, or to treat them only briefly, this text makes a serious study of the real number system and the issues it brings to light. Analysis needs the real numbers to model the line, and to support the concepts of continuity and measure. But these seemingly simple requirements lead to deep issues of set theory—uncountability, the axiom of choice, and large cardinals. In fact, virtually all the concepts of infinite set theory are needed for a proper understanding of the real numbers, and hence of analysis itself. By focusing on the set-theoretic aspects of analysis, this text makes the best of two worlds: it combines a[...]

### Features

While most texts on real analysis are content to assume the real numbers, or to treat them only briefly, this text makes a serious study of the real number system and the issues it brings to light. Analysis needs the real numbers to model the line, and to support the concepts of continuity and measure. But these seemingly simple requirements lead to deep issues of set theory—uncountability, the axiom of [...]

### Contents

The Fundamental Questions.- From Discrete to Continuous.- Infinite Sets.- Functions and Limits.- Open Sets and Continuity.- Ordinals.- The Axiom of Choice.- Borel Sets.- Measure Theory.- Reflections.- Bibliography.- Index.

### Fields of interest

Real Functions; Mathematical Logic and Foundations; History of Mathematics

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-3-319-01576-7](http://www.springer.com/978-3-319-01576-7)

### Hardcover

2013. XII, 248 p. 62 illus. (Undergraduate Texts in Mathematics)

ISBN 978-3-319-01576-7

**Due: October 31, 2013**

A. Syropoulos

## Theory of Fuzzy Computation

The book provides the first full length exploration of fuzzy computability. It describes the notion of fuzziness and present the foundation of computability theory. It then presents the various approaches to fuzzy computability. This text provides a glimpse into the different approaches in this area, which is important for researchers in order to have a clear view of the field. It contains a detailed literature review and the author includes all proofs to make the presentation accessible. Ideas for future research and explorations are also provided. Students and researchers in computer science and mathematics will benefit from this work.

### Features

This book provides the first full length exploration of fuzzy computability. It describes the notion of fuzziness and features the basic ideas of computability theory. It then presents the various approaches to fuzzy computability. This text provides a glimpse into the different approaches in this area, which is important for researchers in order to have a clear view of the field. It contains a detailed [...]

### Contents

Introduction.- A Précis of Classical Computability Theory.- Elements of Fuzzy Set Theory.- On Fuzzy Turing Machines.- Other Fuzzy Models of Computation.- Appendix A: Computing with Words.- Appendix B: The Rough Sets Approach.- References.- Subject Index.- Name Index.

### Fields of interest

Computational Mathematics and Numerical Analysis; Mathematics of Computing

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8378-6](http://www.springer.com/978-1-4614-8378-6)

### Hardcover

2013. XII, 162 p. 6 illus. (IFSR International Series on Systems Science and Engineering, Vol. 31)

ISBN 978-1-4614-8378-6

**Due: October 31, 2013**

S. Padhi, S. Pati, Birla Institute of Technology, Mesra, Ranchi, India

## Theory of Third-Order Differential Equations

This book discusses the theory of third-order differential equations. Most of the results are derived from the results obtained for third-order linear homogeneous differential equations with constant coefficients. M. Gregus, in his book written in 1987, only deals with third-order linear differential equations. These findings are old, and new techniques have since been developed and new results obtained. Chapter 1 introduces the results for oscillation and non-oscillation of solutions of third-order linear differential equations with constant coefficients, and a brief introduction to delay differential equations is given. The oscillation and asymptotic behavior of non-oscillatory [...]

### Features

This book discusses the theory of third-order differential equations. Most of the results are derived from the results obtained for third-order linear homogeneous differential equations with constant coefficients. M. Gregus, in his book written in 1987, only deals with third-order linear differential equations. These findings are old, and new techniques have since been developed and new results obtained. [...]

### Contents

Preface.- Chapter 1: Introduction.- Chapter 2: Behaviour of Solutions of Linear Homogeneous Differential Equations of Third Order.- Chapter 3: Oscillation of Solutions of Linear Nonhomogeneous Differential Equations of Third Order.- Chapter 4: Oscillation and Nonoscillation of Homogeneous Third-order Nonlinear Differential Equations.- Chapter 5: Oscillation and Nonoscillation of Nonlinear Nonhomogeneous Differential Equations of Third Order.- Chapter 6: Oscillatory and Asymptotic Behavior of Solutions of Third Order Delay Differential Equations.- Chapter 7: Stability of Third Order [...]

### Fields of interest

Ordinary Differential Equations; Analysis; Difference and Functional Equations; Algebra

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-81-322-1613-1](http://www.springer.com/978-81-322-1613-1)

### Hardcover

2014. XI, 504 p.  
ISBN 978-81-322-1613-1

**Due: October 31, 2013**

P. Amster

## Topological Methods in the Study of Boundary Value Problems

This textbook is devoted to the study of some simple but representative nonlinear boundary value problems by topological methods. The approach is elementary, with only a few model ordinary differential equations and applications, chosen in such a way that the student may avoid most of the technical difficulties and focus on the application of topological methods. Only basic knowledge of general analysis is needed, making the book understandable to non-specialists. The main topics in the study of boundary value problems are present in this text, so readers with some experience in functional analysis or differential equations may also find some elements that complement and enrich their [...]

### Features

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### Contents

Introduction.- Shooting type methods.- The Banach Fixed Point Theorem.- Schauder's Theorem and applications.- Topological degree: an introduction.- Applications.- Basic facts on metric and normed spaces.- Brief review of ODE's.- Hints and Solutions to Selected Exercises.

### Fields of interest

Analysis; Ordinary Differential Equations; Partial Differential Equations

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8892-7](http://www.springer.com/978-1-4614-8892-7)

### Softcover

2014. XVI, 224 p. 18 illus., 2 illus. in color. (Universitext)  
ISBN 978-1-4614-8892-7

**Due: November 30, 2013**

G. Giorgi, Universita Pavia, Pavia, Italy; T.H. Kjeldsen, Roskilde University, Roskilde, Denmark (Eds.)

## Traces and Emergence of Nonlinear Programming

The book contains reproductions of the most important papers that gave birth to the first developments in nonlinear programming. Of particular interest is W. Karush's often quoted Master Thesis, which is published for the first time. The anthology includes an extensive preliminary chapter, where the editors trace out the history of mathematical programming, with special reference to linear and nonlinear programming.

### Features

The book contains reproductions of the most important papers that gave birth to the first developments in nonlinear programming. Of particular interest is W. Karush's often quoted Master Thesis, which is published for the first time. The anthology includes an extensive preliminary chapter, where the editors trace out the history of mathematical programming, with special reference to linear and nonlinear [...]

### Contents

Preface and Acknowledgements.- Introductory Chapter: A Historical View of Nonlinear Programming: Traces and Emergence.- 18 historical articles.

### Fields of interest

Computational Science and Engineering; History of Mathematics

### Target groups

Research

### Type of publication

Collected works

More on [www.springer.com/978-3-0348-0438-7](http://www.springer.com/978-3-0348-0438-7)

### Hardcover

2013. XVI, 431 p.  
ISBN 978-3-0348-0438-7

**Due: August 31, 2013**

P.C. Bressloff, University of Utah, Salt Lake City, USA

## Waves in Neural Media

From Single Neurons to Neural Fields

Waves in Neural Media: From Single Neurons to Neural Fields surveys mathematical models of traveling waves in the brain, ranging from intracellular waves in single neurons to waves of activity in large-scale brain networks. The work provides a pedagogical account of analytical methods for finding traveling wave solutions of the variety of nonlinear differential equations that arise in such models. These include regular and singular perturbation methods, weakly nonlinear analysis, Evans functions and wave stability, homogenization theory and averaging, and stochastic processes. Also covered in the text are exact methods of solution where applicable. Historically speaking, the[...]

### Features

Waves in Neural Media: From Single Cells to Neural Fields surveys mathematical models of traveling waves in the brain, ranging from intracellular waves in single neurons to waves of activity in large-scale brain networks. The work provides a pedagogical account of analytical methods for finding traveling wave solutions of the variety of nonlinear differential equations that arise in such models. [...]

### Contents

Preface.- Part I Neurons.- Single Neuron Modeling.- Traveling Waves in One-Dimensional Excitable Media.- Wave Propagation Along Spiny Dendrites.- Calcium Waves and Sparks.- Part II Networks.- Waves in Synaptically-Coupled Spiking Networks.- Population Models and Neural Fields.- Waves in Excitable Neural Fields.- Neural Field Model of Binocular Rivalry Waves.- Part III Development and Disease.- Waves in the Developing and the Diseased Brain.- Index.

### Fields of interest

Mathematical Models of Cognitive Processes and Neural Networks; Physiological, Cellular and Medical Topics; Neurosciences; Mathematical and Computational Biology; Probability Theory and Stochastic Processes; Ordinary Differential Equations

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8865-1](http://www.springer.com/978-1-4614-8865-1)

### Softcover

2014. XIX, 436 p. 151 illus., 18 illus. in color. (Lecture Notes on Mathematical Modelling in the Life Sciences) ISBN 978-1-4614-8865-1

**Due: October 31, 2013**

## Statistics

L. Herkenhoff, Saint Mary's College, Orinda, USA; J. Fogli, Sentium Inc., Pleasant Hill, USA

## Applied Statistics for Business and Management using Microsoft Excel

Applied Business Statistics for Business and Management using Microsoft Excel is the first book to illustrate the capabilities of Microsoft Excel to teach applied statistics effectively. It is a step-by-step exercise-driven guide for students and practitioners who need to master Excel to solve practical statistical problems in industry. If understanding statistics isn't your strongest suit, you are not especially mathematically-inclined, or if you are wary of computers, this is the right book for you. Excel, a widely available computer program for students and managers, is also an effective teaching and learning tool for quantitative analyses in statistics courses. Its powerful[...]

### Features

Applied Business Statistics for Business and Management using Microsoft Excel is the first book to illustrate the capabilities of Microsoft Excel to teach applied statistics effectively. It is a step-by-step exercise-driven guide for students and practitioners who need to master Excel to solve practical statistical problems in industry. If understanding statistics isn't your strongest suit, you are [...]

### Contents

Statistics and Data.- Summarizing Data.- Descriptive Statistics and Graphing.- Normal World.- Survey Design.- Sampling.- Inference.- Probability.- Correlation.- Linear Regression.- Multiple Regression.- Significance Tests.- Non Linear Regression.- Survey Reports.

### Fields of interest

Statistics and Computing / Statistics Programs; Statistics for Business, Economics, Mathematical Finance, Insurance; Statistics (general)

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8422-6](http://www.springer.com/978-1-4614-8422-6)

### Softcover

2013. XV, 419 p. 620 illus., 569 illus. in color. ISBN 978-1-4614-8422-6

**Due: November 28, 2013**

V. Spokoiny, Weierstrass Institute (WIAS), Berlin, Germany; T. Dickhaus, Humboldt-University Berlin, Berlin, Germany

## Basics of Modern Parametric Statistics

This textbook provides a unified and self-contained presentation of the main approaches to and ideas of mathematical statistics. It collects the basic mathematical ideas and tools needed as a basis for more serious study or even independent research in statistics. The majority of existing textbooks in mathematical statistics follow the classical asymptotic framework. Yet, as modern statistics has changed rapidly in recent years, new methods and approaches have appeared. The emphasis is on finite sample behavior, large parameter dimensions, and model misspecifications. The present book provides a fully self-contained introduction to the world of modern mathematical statistics.[...]

### Features

This textbook provides a unified and self-contained presentation of the main approaches to and ideas of mathematical statistics. It collects the basic mathematical ideas and tools needed as a basis for more serious study or even independent research in statistics. The majority of existing textbooks in mathematical statistics follow the classical asymptotic framework. Yet, as modern statistics has changed [...]

### Contents

Basics.- Basic notions.- Parameter estimation for an i.i.d. model.- Regression Estimation.- Estimation in linear models.- Bayes estimation.- Testing a statistical hypothesis.- Testing in linear models.- Some other testing methods.- Deviation probability for quadratic forms.

### Fields of interest

Statistical Theory and Methods; Probability and Statistics in Computer Science

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-642-39908-4](http://www.springer.com/978-3-642-39908-4)

### Hardcover

2013. Approx. 300 p. (Springer Texts in Statistics) ISBN 978-3-642-39908-4

**Due: October 31, 2013**

J.-M. Marin, Université Montpellier, Montpellier, France; C. Robert, Université Paris IX, Paris CX 16, France

## Bayesian Essentials with R

This Bayesian modeling book provides a self-contained entry to computational Bayesian statistics. Focusing on the most standard statistical models and backed up by real datasets and an all-inclusive R (CRAN) package called bayess, the book provides an operational methodology for conducting Bayesian inference, rather than focusing on its theoretical and philosophical justifications. Readers are empowered to participate in the real-life data analysis situations depicted here from the beginning. The stakes are high and the reader determines the outcome. Special attention is paid to the derivation of prior distributions in each case and specific reference solutions are given for each of [...]

### Features

This Bayesian modeling book provides a self-contained entry to computational Bayesian statistics. Focusing on the most standard statistical models and backed up by real datasets and an all-inclusive R (CRAN) package called bayess, the book provides an operational methodology for conducting Bayesian inference, rather than focusing on its theoretical and philosophical justifications. Readers are empowered to [...]

### Contents

User's Manual.- Normal Models.- Regression and Variable Selection.- Generalized Linear Models.- Capture-Recapture Experiments.- Mixture Models.- Time Series.- Image Analysis.- References.- Index.

### Fields of interest

Statistics and Computing / Statistics Programs; Statistical Theory and Methods

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8686-2](http://www.springer.com/978-1-4614-8686-2)

### Hardcover

2014. XII, 324 p. 67 illus., 30 illus. in color. (Springer Texts in Statistics)  
ISBN 978-1-4614-8686-2

**Due: November 29, 2013**

S.P. Millard

## EnvStats

An R Package for Environmental Statistics

This book describes EnvStats, a new comprehensive R package for environmental statistics and the successor to the S-PLUS module EnvironmentalStats for S-PLUS (first released in 1997). EnvStats and R provide an open-source set of powerful functions for performing graphical and statistical analyses of environmental data, bringing major environmental statistical methods found in the literature and regulatory guidance documents into one statistical package, along with an extensive hypertext help system that explains what these methods do, how to use these methods, and where to find them in the environmental statistics literature. EnvStats also includes numerous built-in data sets from [...]

### Features

This book describes EnvStats, a new comprehensive R package for environmental statistics. EnvStats and R provide an open-source set of powerful functions for performing graphical and statistical analyses of environmental data, along with an extensive hypertext help system that explains what these methods do, how to use them, and where to find them in the environmental statistics literature. EnvStats also [...]

### Contents

Preface.- Chapters.- References.- Index.

### Fields of interest

Statistics and Computing / Statistics Programs; Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences

### Target groups

Professional/practitioner

### Type of publication

Manual

More on [www.springer.com/978-1-4614-8455-4](http://www.springer.com/978-1-4614-8455-4)

### Softcover

2013. XVI, 291 p. 69 illus., 59 illus. in color.  
ISBN 978-1-4614-8455-4

**Due: September 30, 2013**

Th. Cleff, Pforzheim University, Pforzheim, Germany

## Exploratory Data Analysis in Business and Economics

An Introduction Using SPSS, Stata, and Excel

In a world in which we are constantly surrounded by data, figures, and statistics, it is imperative to understand and to be able to use quantitative methods. Statistical models and methods are among the most important tools in economic analysis, decision-making and business planning. This textbook, "Descriptive Statistics and Modern Data Analysis", aims to familiarise students of economics and business as well as practitioners in firms with the basic principles, techniques, and applications of descriptive statistics and data analysis. Drawing on practical examples from business settings, it demonstrates the basic descriptive methods of univariate and bivariate analysis. The textbook [...]

### Features

In a world in which we are constantly surrounded by data, figures, and statistics, it is imperative to understand and to be able to use quantitative methods. Statistical models and methods are among the most important tools in economic analysis, decision-making and business planning. This textbook, "Descriptive Statistics and Modern Data Analysis", aims to familiarise students of economics and business as well [...]

### Contents

Statistics and Empirical Research.- From Disarray to Dataset.- Univariate Data Analysis.- Bivariate Association.- Regression Analysis.- Time Series and Indices.- Cluster Analysis.- Factor Analysis.- Solutions to Chapter Exercises.- References and Bibliography.- Index.

### Fields of interest

Statistics for Business, Economics, Mathematical Finance, Insurance; Statistics for Social Science, Behavioral Science, Education, Public Policy, and Law; Probability and Statistics in Computer Science

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-319-01516-3](http://www.springer.com/978-3-319-01516-3)

### Softcover

Chapters 1 - 6 translated from the German original edition: Deskriptive Statistik und moderne Datenanalyse, © Gabler Verlag, Springer Fachmedien Wiesbaden GmbH, 2011

2013. XXI, 214 p. 128 illus., 41 illus. in color.  
ISBN 978-3-319-01516-3

**Due: September 30, 2013**

H. Lee, Massachusetts General Hospital, Boston, USA

## Foundations of Applied Statistical Methods

This is a text in methods of applied statistics for researchers who design and conduct experiments, perform statistical inference, and write technical reports. These research activities rely on an adequate knowledge of applied statistics. The reader both builds on basic statistics skills and learns to apply it to applicable scenarios without over-emphasis on the technical aspects. Demonstrations are a very important part of this text. Mathematical expressions are exhibited only if they are defined or intuitively comprehensible. This text may be used as a self review guidebook for applied researchers or as an introductory statistical methods textbook for students not majoring in[...]

### Features

This is a text in methods of applied statistics for researchers who design and conduct experiments, perform statistical inference, and write technical reports. These research activities rely on an adequate knowledge of applied statistics. The reader both builds on basic statistics skills and learns to apply them to applicable scenarios without over-emphasis on the technical aspects. Demonstrations are a [...]

### Contents

Warming Up-Descriptive Statistics and Essential Probability Models.- Statistical Inference Focusing on a Single Mean or Proportion.- Inference Using t-tests for Comparing Two Means.- Inference Using Analysis of Variance for Comparing Multiple Means.- Inference Using Correlation and Regression.- Normal Distribution Assumption Free Non-Parametric Inference.- Methods for Censored Survival Time Data Analysis and Inference.- Sample Size Determination for Inference.- Review Exercise Problems.- Probability of Standard Normal Distribution.- Percentiles of t-Distributions.- Upper 95th and[...]

### Fields of interest

Statistics for Life Sciences, Medicine, Health Sciences; Statistical Theory and Methods; Statistics (general)

### Target groups

Graduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-3-319-02401-1](http://www.springer.com/978-3-319-02401-1)

### Hardcover

2014. VIII, 159 p. 100 illus., 2 illus. in color.  
ISBN 978-3-319-02401-1

**Due: October 31, 2013**

K. Takezawa, Natl Agriculture & Food Res Org, Tsukuba, Japan

## Learning Regression Analysis by Simulation

The standard approach of most introductory books for practical statistics is that readers first learn the minimum mathematical basics of statistics and rudimentary concepts of statistical methodology. They then are given examples of analyses of data obtained from natural and social phenomena so that they can grasp practical definitions of statistical methods. Finally they go on to acquaint themselves with statistical software for the PC and analyze similar data to expand and deepen their understanding of statistical methods. This book, however, takes a slightly different approach, using simulation data instead of actual data to illustrate the functions of statistical methods. Also, R[...]

### Features

The standard approach of most introductory books for practical statistics is that readers first learn the minimum mathematical basics of statistics and rudimentary concepts of statistical methodology. They then are given examples of analyses of data obtained from natural and social phenomena so that they can grasp practical definitions of statistical methods. Finally they go on to acquaint themselves with [...]

### Contents

Chapter 1 Linear algebra. Starting up and executing R. Vectors. Matrices. Addition of two matrices. Multiplying two matrices. Identity and inverse matrices. Simultaneous equations. Diagonalization of a symmetric matrix. Quadratic forms.- Chapter 2 Distributions and tests. Sampling and random variables. Probability distribution. Normal distribution and the central limit theorem. Interval estimation by t distribution. t-test. Interval estimation of population variance and the  $\chi^2$  distribution. Fdistribution and F-test. Wilcoxon signed-rank sum test.- Chapter 3 Simple regression. Derivation[...]

### Fields of interest

Statistical Theory and Methods; Statistics and Computing / Statistics Programs; Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-4-431-54320-6](http://www.springer.com/978-4-431-54320-6)

### Hardcover

Original Japanese edition published by Kyoritsu Shuppan Co., Ltd., Tokyo, 2012  
2014. XII, 300 p. 88 illus.  
ISBN 978-4-431-54320-6

**Due: September 30, 2013**

P.J. Dhrymes, Columbia University, New York, USA

## Mathematics for Econometrics

This book deals with a number of mathematical topics that are of great importance in the study of classical econometrics. There is a lengthy chapter on matrix algebra, which takes the reader from the most elementary aspects to the partitioned inverses, characteristic roots and vectors, symmetric, and orthogonal and positive (semi) definite matrices. The book also covers pseudo-inverses, solutions to systems of linear equations, solutions of vector difference equations with constant coefficients and random forcing functions, matrix differentiation, and permutation matrices. Its novel features include an introduction to asymptotic expansions, and examples of applications to the[...]

### Features

The fourth edition of this book continues to deal with a number of mathematical topics that are of great importance in the study of classical econometrics. The major expansion involves a more complete coverage of basic aspects of mathematics that continue to play an increasingly significant role in the literature of econometrics. Thus, the chapter on difference equations has been expanded to include [...]

### Contents

Preface.- Chapters.- Bibliography.- References.

### Fields of interest

Statistics for Business, Economics, Mathematical Finance, Insurance; Econometrics; Game Theory, Economics, Social and Behav. Sciences

### Target groups

Upper undergraduate

### Type of publication

Undergraduate textbook

More on [www.springer.com/978-1-4614-8144-7](http://www.springer.com/978-1-4614-8144-7)

### Softcover

2013. XVII, 419 p. 1 illus.  
ISBN 978-1-4614-8144-7

**usually dispatched within 3 to 5 business days  
October 31, 2013**

R. Brüggemann, Leibniz-Institut für, Berlin, Germany; L. Carlsen, Awareness-Center, Roskilde-Veddelev, Denmark; J. Wittmann (Eds.)

## Multi-indicator Systems and Modelling in Partial Order

"Multi-indicator Systems and Modelling in Partial Order" contains the newest theoretical concepts as well as new applications or even applications, where standard multivariate statistics fail. Some of the presentations have their counterpart in the book; however, there are many contributions, which are completely new in the field of applied partial order.

### Features

"Multi-indicator Systems and Modelling in Partial Order" contains the newest theoretical concepts as well as new applications, and applications where standard multivariate statistics fail. Some of the presentations have their counterpart in the book; however, there are many contributions, which are completely new in the field of applied partial order.

### Contents

Part A: Theory.- Evaluation as a general approach to problem driven mathematical modeling.- Multivariate Data Sets for Inference of Order: Some Considerations and Explorations.- Measures of Incomparability and of Inequality and their Applications.- Measuring structural dissimilarity between finite partial orders.- Measuring complexity of partially ordered sets.- Part B: Partial Order as Tool to Analyse Composite Indicators.- Comparative Knowledge Discovery with Partial Order and Composite Indicator.- A software platform Towards a Comparison of Cars - A case study for Handling[...]

### Fields of interest

Statistics for Life Sciences, Medicine, Health Sciences; Environmental Management; Math. Appl. in Environmental Science; Statistics (general)

### Target groups

Research

### Type of publication

Contributed volume

More on [www.springer.com/978-1-4614-8222-2](http://www.springer.com/978-1-4614-8222-2)

### Hardcover

2014. XIII, 370 p. 146 illus., 65 illus. in color. ISBN 978-1-4614-8222-2

**Due: October 31, 2013**

J.A. Linebach, Clearwater Christian College, Clearwater, USA; B.P. Tesch, Suffolk University, Dover, USA; L.M. Kovacsics

## Nonparametric Statistics for Applied Research

Non-parametric methods are widely used for studying populations that take on a ranked order (such as movie reviews receiving one to four stars). The use of non-parametric methods may be necessary when data have a ranking but no clear numerical interpretation, such as when assessing preferences. In terms of levels of measurement, non-parametric methods result in "ordinal" data. As non-parametric methods make fewer assumptions, their applicability is much wider than the corresponding parametric methods. In particular, they may be applied in situations where less is known about the application in question. Also, due to the reliance on fewer assumptions, non-parametric methods are more[...]

### Features

Non-parametric methods are widely used for studying populations that take on a ranked order (such as movie reviews receiving one to four stars). The use of non-parametric methods may be necessary when data have a ranking but no clear numerical interpretation, such as when assessing preferences. In terms of levels of measurement, non-parametric methods result in "ordinal" data. As non-parametric methods [...]

### Contents

Introduction.- Meeting the Team.- Questions, Assumptions, and Decisions.- Understanding Similarity.- The Bourgeoisie, the Proletariat, and an Unwelcomed Press Conference.- Agreeing to Disagree.- Guesstimating the Fluffy-Maker.- X Marks the Spot Revisited.- Let My People Go!.- Here's Your Sign and the Neighborhood Bowling League.- Geometry on Steroids.- Crunch Time.- Presentation.

### Fields of interest

Statistical Theory and Methods; Statistics for Social Science, Behavioral Science, Education, Public Policy, and Law; Statistics for Life Sciences, Medicine, Health Sciences

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-9040-1](http://www.springer.com/978-1-4614-9040-1)

### Hardcover

2014. XX, 500 p. 22 illus., 16 illus. in color. ISBN 978-1-4614-9040-1

**Due: November 30, 2013**

E.G. Phadia, William Paterson University, Wayne, USA

## Prior Processes and Their Applications

### Nonparametric Bayesian Estimation

This book presents a systematic and comprehensive treatment of various prior processes that have been developed over the last four decades in order to deal with the Bayesian approach to solving some non-parametric inference problems. Applications of these priors in various estimation problems are presented. Starting with the famous Dirichlet process and its variants, the first part describes processes neutral to the right, gamma and extended gamma, beta and beta-Stacy, tail free and Polya tree, one and two parameter Poisson-Dirichlet, the Chinese Restaurant and Indian Buffet processes, etc., and discusses their interconnection. In addition, several new processes that have appeared in[...]

### Features

This book presents a systematic and comprehensive treatment of various prior processes that have been developed over the last four decades in order to deal with the Bayesian approach to solving some non-parametric inference problems. Applications of these priors in various estimation problems are presented. Starting with the famous Dirichlet process and its variants, the first part describes processes [...]

### Contents

Prior Processes.- Inference Based on Complete Data.- Inference Based on Incomplete Data.

### Fields of interest

Statistics (general)

### Target groups

Graduate

### Type of publication

Monograph

More on [www.springer.com/978-3-642-39279-5](http://www.springer.com/978-3-642-39279-5)

### Hardcover

2013. XIV, 207 p. 1 illus. ISBN 978-3-642-39279-5

**usually dispatched within 3 to 5 business days**

S. Yamada

## Software Reliability Modeling

### Fundamentals and Applications

Software reliability is one of the most important characteristics of software product quality. Its measurement and management technologies during the software product life cycle are essential to produce and maintain quality/reliable software systems. Part 1 of this book introduces several aspects of software reliability modeling and its applications. Hazard rate and nonhomogeneous Poisson process (NHPP) models are investigated particularly for quantitative software reliability assessment. Further, imperfect debugging and software availability models are discussed with reference to incorporating practical factors of dynamic software behavior. Three software management problems are [...]

### Features

Software reliability is one of the most important characteristics of software product quality. Its measurement and management technologies during the software product life cycle are essential to produce and maintain quality/reliable software systems. Part 1 of this book introduces several aspects of software reliability modeling and its applications. Hazard rate and nonhomogeneous Poisson process [...]

### Contents

Chapter 1 Introduction to Software Reliability Modeling and Its Applications.- 1. Introduction.- 2. Definitions and Software Reliability Model.- 3. Software Reliability Growth Modeling.- 4. Imperfect Debugging Modeling.- 4.1 Imperfect debugging model with perfect correction rate.- 4.2 Imperfect debugging model with introduced faults.- 5. Software Availability Modeling.- 5.1 Model description.- 5.2 Software availability measures.- 6. Application of Software Reliability Assessment.- 6.1 Optimal software release problem.- 6.2 Statistical software testing-progress control.- 6.3 Optimal[...]

### Fields of interest

Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences; Statistics and Computing / Statistics Programs; Software Engineering

### Target groups

Graduate

### Type of publication

Brief

More on [www.springer.com/978-4-431-54564-4](http://www.springer.com/978-4-431-54564-4)

### Softcover

2014. VIII, 98 p. 60 illus. (SpringerBriefs in Statistics)  
ISBN 978-4-431-54564-4

**Due: November 30, 2013**

R. Carmona, Princeton University, Princeton, USA

## Statistical Analysis of Financial Data in R

Although there are many books on mathematical finance, few deal with the statistical aspects of modern data analysis as applied to financial problems. This textbook fills this gap by addressing some of the most challenging issues facing financial engineers. It shows how sophisticated mathematics and modern statistical techniques can be used in the solutions of concrete financial problems. Concerns of risk management are addressed by the study of extreme values, the fitting of distributions with heavy tails, the computation of values at risk (VaR), and other measures of risk. Principal component analysis (PCA), smoothing, and regression techniques are applied to the construction of [...]

### Features

Although there are many books on mathematical finance, few deal with the statistical aspects of modern data analysis as applied to financial problems. This book fills this gap by addressing some of the most challenging issues facing any financial engineer. It shows how sophisticated mathematics and modern statistical techniques can be used in concrete financial problems. Concerns of risk management [...]

### Contents

Univariate Data Distributions.- Heavy Tail Distributions.- Dependence and Multivariate Data Exploration.- Parametric Regression.- Local and Nonparametric Regression.- Time Series Models.- Multivariate Time Series, Linear Systems and Kalman Filtering.- Nonlinear Time Series: Modeling and Simulation.- Appendices.- Indices.

### Fields of interest

Statistics for Business, Economics, Mathematical Finance, Insurance; Statistical Theory and Methods; Quantitative Finance

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8787-6](http://www.springer.com/978-1-4614-8787-6)

### Hardcover

2014. XXVI, 550 p. 229 illus., 36 illus. in color. (Springer Texts in Statistics)  
ISBN 978-1-4614-8787-6

**Due: December 31, 2013**

J. Sun, University of Missouri, Columbia, USA; X. Zhao

## Statistical Analysis of Panel Count Data

Panel count data occur in studies that concern recurrent events, or event history studies, when study subjects are observed only at discrete time points. By recurrent events, we mean the event that can occur or happen multiple times or repeatedly. Examples of recurrent events include disease infections, hospitalizations in medical studies, warranty claims of automobiles or system break-downs in reliability studies. In fact, many other fields yield event history data too such as demographic studies, economic studies and social sciences. For the cases where the study subjects are observed continuously, the resulting data are usually referred to as recurrent event data. This book [...]

### Features

Panel count data occur in studies that concern recurrent events, or event history studies, when study subjects are observed only at discrete time points. By recurrent events, we mean the event that can occur or happen multiple times or repeatedly. Examples of recurrent events include disease infections, hospitalizations in medical studies, warranty claims of automobiles or system break-downs in reliability [...]

### Contents

Introduction.- Poisson Models and Parameter Inference.- Nonparametric Estimation.- Nonparametric Comparison of Point Processes.- Regression Analysis of Panel Count Data I and II.- Analysis of Multivariate Panel Count Data.- Other Topics.- Some Sets of Data.- References.- Index.

### Fields of interest

Statistics for Life Sciences, Medicine, Health Sciences; Statistical Theory and Methods

### Target groups

Research

### Type of publication

Monograph

More on [www.springer.com/978-1-4614-8714-2](http://www.springer.com/978-1-4614-8714-2)

### Hardcover

2013. XV, 271 p. 18 illus., 11 illus. in color. (Statistics for Biology and Health, Vol. 80)  
ISBN 978-1-4614-8714-2

**Due: October 31, 2013**

D.P. Kroese, University of Queensland, Brisbane, Australia; J. Chan, Australian National University, Canberra, Australia

## Statistical Modeling and Computation

This textbook on statistical modeling and statistical inference will assist advanced undergraduate and graduate students. Statistical Modeling and Computation provides a unique introduction to modern Statistics from both classical and Bayesian perspectives. It also offers an integrated treatment of Mathematical Statistics and modern statistical computation, emphasizing statistical modeling, computational techniques, and applications. Each of the three parts will cover topics essential to university courses. Part I covers the fundamentals of probability theory. In Part II, the authors introduce a wide variety of classical models that include, among others, linear regression and ANOVA[...]

### Features

This textbook on statistical modeling and statistical inference will assist advanced undergraduate and graduate students. Statistical Modeling and Computation provides a unique introduction to modern Statistics from both classical and Bayesian perspectives. It also offers an integrated treatment of Mathematical Statistics and modern statistical computation, emphasizing statistical modeling, [...]

### Contents

Probability Models.- Random Variables and Probability Distributions.- Joint Distributions.- Common Statistical Models.- Statistical Inference.- Likelihood.- Monte Carlo Sampling.- Bayesian Inference.- Generalized Linear Models.- Dependent Data Models.- State Space Models.- References.- Solutions.- MATLAB Primer.- Mathematical Supplement.- Index.

### Fields of interest

Statistics and Computing / Statistics Programs; Statistics for Life Sciences, Medicine, Health Sciences; Statistical Theory and Methods

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8774-6](http://www.springer.com/978-1-4614-8774-6)

### Hardcover

2014. XX, 387 p. 114 illus., 8 illus. in color.  
ISBN 978-1-4614-8774-6

**Due: October 31, 2013**

R. Sabo, Virginia Commonwealth University, Richmond, USA; E. Boone, Virginia Commonwealth University, Richmond, USA

## Statistical Research Methods

### A Guide for Non-Statisticians

This textbook will help graduate students in non-statistics disciplines, advanced undergraduate researchers, and research faculty in the health sciences to learn, use and communicate results from many commonly used statistical methods. The material covered, and the manner in which it is presented, describe the entire data analysis process from hypothesis generation to writing the results in a manuscript. Chapters cover, among other topics: one and two-sample proportions, multi-category data, one and two-sample means, analysis of variance, and regression. Throughout the text, the authors explain statistical procedures and concepts using a non-statistical language. This accessible[...]

### Features

This textbook will help graduate students in non-statistics disciplines, advanced undergraduate researchers, and research faculty in the health sciences to learn, use and communicate results from many commonly used statistical methods. The material covered, and the manner in which it is presented, describe the entire data analysis process from hypothesis generation to writing the results in a manuscript. [...]

### Contents

Introduction.- One-Sample Proportions.- Two-Sample Proportions.- Multi-Category Data.- Summarizing Continuous Data.- One-Sample Means.- Two-Sample Means.- Analysis of Variance.- Power and Sample-Size.- Association and Regression.

### Fields of interest

Statistics for Life Sciences, Medicine, Health Sciences; Statistical Theory and Methods; Statistics (general)

### Target groups

Upper undergraduate

### Type of publication

Graduate/advanced undergraduate textbook

More on [www.springer.com/978-1-4614-8707-4](http://www.springer.com/978-1-4614-8707-4)

### Hardcover

2013. IX, 221 p. 33 illus., 13 illus. in color.  
ISBN 978-1-4614-8707-4

**Due: October 31, 2013**

P. Lafaye de Micheaux, Université de Montréal, Montreal, Canada; R. Drouilhet, B.S.H.M., Grenoble, France; B. Liquet, Université Victor Segalen Bordeaux 2, Bordeaux cedex, France

## The R Software

### Fundamentals of Programming and Statistical Analysis

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### Features

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Foreward.- Basic Concepts and Data Organisation.- Importing, Exporting and Producing Data.- Data Manipulation, Functions.- R and its Documentation.- Drawing Curves and Plots.- Programming in R.- Managing Sessions.- Basic Mathematics.- Descriptive Statistics.- A Better Understanding of Random Variables.- Confidence Intervals and Hypothesis Testing.- Simple and Multiple Linear Regression.- Elementary Analysis of Variance.- Installing R and R Packages.- References.- Indices.- Solutions.

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