
Contents:
1. Introduction: The worst social statistic ever
2. The importance of social statistics
3. Soft facts: Sources of bad statistics
4. Mutant statistics: Methods for mangling numbers
5. Apples and oranges: Inappropriate comparisons
6. Stat wars: Conflicts over social statistics
7. Thinking about social statistics: The critical approach

Readership: Statisticians, students of statistics and anyone intimidated or confused by statistics.

Every day, people are exposed through the mass media to large quantities of erroneous and misleading statistics about social problems, often originating with advocacy groups. Some are deliberate attempts to deceive, like the smoking-is-safe numbers once trotted out by tobacco interests. But the majority of bad statistics, argues Joel Best in this engaging volume, result from "confusion, incompetence, innumeracy or selective, self-righteous efforts to produce numbers that reaffirm principles and interests that their advocates consider right and just".

By focusing on social problems and limiting his examination to the United States, Best is fishing in a well-stocked pond. The paucity of data on many social issues, plus deep ideological divisions over some (abortion, child poverty, homelessness), almost ensures statistical wars. Best also provides some truly grotesque examples, such as the majority of Internet traffic supposedly involving pornography or claims that strangers kidnap 50,000 children a year in the United States.

The book’s chief weakness is Best’s superficial analysis of why Americans are so uncritical about social statistics, being either too trusting of sources or else classing statistics as magical. What about an education system which fails to inculcate critical thinking in so many areas?

The Toronto Star
Ottawa, Canada


Contents:
1. Probability spaces
2. Conditional probability and independence
3. Common probability distributions
4. Random variables
5. Sums of random variables
6. Convergence and limit theorems
7. Stochastic processes in discrete time
8. Stochastic processes in continuous time

APPENDIX: Common Distributions and Mathematical Facts

Readership: Undergraduate students in mathematics or mathematics and statistics

What makes this book so interesting is the fact that, in only two hundred and fifty pages, the reader is brought from the very beginning to a fairly high level in the knowledge of probability theory. Indeed, in the final chapters of the monograph, it is possible to deal with very interesting aspects of discrete and continuous time stochastic processes, such as branching processes, random walks, Markov chains, queues, renewal processes and Wiener processes. Difficult topics such as modes of convergence and the relations between them are already possible in Chapter 6.

The author deals in an elegant way with important theorems such as the central limit theorem and the laws of large numbers. The full mathematical details are not given (only a reference) and the proof is given in a special case. For example, the strong law of large numbers is proved under the assumption of finite fourth moment. There is a wealth of about two hundred exercises, with solutions, which makes the book useful for teaching.

Limburgs Universitair Centrum
Diepenbeek, Belgium.


Contents:
1. The basics
2. Sample size
3. Covariation
4. Epidemiology
5. Environmental studies
6. Design, conduct and analysis
7. Words, tables and graphs
8. Consulting
Epilogue

Readership: Researchers, teachers and students who have a basic knowledge of statistics

This book presents rules of thumb for practitioners of statistical science. Each chapter is littered with these rules of thumb; hence the appropriate title, which the reader should take note of when conducting their own research and statistical analysis. The author has provided justification for every rule. Every rule is discussed under five headings: introduction, statement of the rule, illustration, basis of the rule and discussion. The author encourages discussion of these rules of thumb and that these will be incorporated on the following website: http://www.vanbelle.org.

The book begins with basic statistical considerations about inference, assumptions and statistical processes and should be understandable to those who have had a basic course in statistics. Some readers may feel that the chapter on words, tables and graphs should be earlier in the
MÉTHODES BAYÉSIENNES EN STATISTIQUE

Contents:
1. Thomas Bayes et son héritage
2. Le paradigme bayésien
3. L’inférence bayésienne: principes généraux
4. Les modèles de base de l’analyse bayésienne
5. La spécification de la distribution a priori
6. Méthodes de calcul et analyse bayésienne
7. Base décisionnelles de l’analyse bayésienne
8. Tests d’hypothèses et choix des modèles
9. Propriétés asymptotiques des estimateurs bayésiens
10. Estimation bayésienne de modèles de mélanges
11. Quelques modèles de séries temporelles
12. Inférence bayésienne non paramétrique et bootstrap
13. Modèles de durée
14. Estimation bayésienne d’un modèle multi-états

Markovien

Lecture: Étudiants et chercheurs en statistique

Limburgs Universitair Centrum
Depenbeek, Belgium. N.D.C. Veraverbeke


Contents:
1. Introduction
2. Plots, probability plots and regression tests
3. Tests using moments
4. Other tests for univariate normality
5. Goodness of fit tests
6. Tests for outliers
7. Power comparisons for univariate tests for normality
8. Assessing multivariate normality
9. Testing for multivariate outliers
10. Testing for normal mixtures
11. Robust estimation of location and scale
12. Computational issues
APPENDIX A: Data Sets Used in Examples
APPENDIX B: Parameter and Critical Values
APPENDIX C: Function Optimization Computer Subroutine

Variable Metric Method

Readership: Statisticians, data analysts, people who are not professional statisticians but who carry out statistical analyses of data

The publisher’s description of this book as a ‘comprehensive reference/text [which] describes the selection, design, theory, and application of tests for univariate and multivariate normality’ is amply justified. The table of contents shows its wide coverage of topics. Appendices include fourteen sets of data used in examples throughout the book, and thirty-six tables of percentage points and associated parameters. There is a seventeen-page index. References are given at the end of each chapter (one would have preferred a single combined bibliography), with an average of forty-two references per chapter. The book is well written and attractively presented. Far from being just a catalogue of tests, it includes useful discussions of many topics (for instance, what kurtosis really measures, or again practical applications of normal mixture distributions). It is an extremely worthwhile purchase for any group of people in an institute, university, firm, or whatever, whose work involves statistical data analysis.

University of East Anglia
Norwich, U.K. T. Lewis


Contents:
1. Introduction
2. Estimation
3. Testing hypotheses
4. One-way ANOVA
5. Multiple comparison techniques
6. Regression analysis
7. Multifactor analysis of variance
8. Experimental design models
9. Analysis of covariance
10. Estimation of testing in general Gauss-Markov models
11. Split plot models
12. Mixed models and variance components
13. Checking assumptions, residuals, and influential observations
14. Variable selection and collinearity

APPENDIX A: Vector Spaces
APPENDIX B: Matrix Results
APPENDIX C: Some Univariate Distributions
APPENDIX D: Multivariate Distributions
APPENDIX E: Inference for One Parameter
APPENDIX F: Significantly Insignificant Tests
APPENDIX G: Randomization Theory Models

Readership: Mathematically prepared readers

The preface notes the following changes in this third edition: (1) An addition (2pp.) on generalized linear models in Chapter 1. (2) The introduction of “identifiability” in Chapter 2 (6 pp.). (3) The Former Appendix F (an alternative approach to handling linear parametric constrains) is now Section 3.3 (14 pp.). (4) Related changes result in Chapter 8 (6 pp.) (5) “In Chapter 9, reliance on the normal equations has been eliminated from the discussion of ACOVA models”. (6) “Appendix F now discusses the meaning of small F-statistics” (10 pp.). (7) Numerous minor changes throughout. Overall, the book is now twenty pages longer and there are 134 references (up from 126). The following quotations are taken from the (same) reviewer’s comments on the second edition [Short Book Reviews, Vol. 17, No. 1, April 1997, p. 4]: The book “retains its fairly mathematical character…. The writing style is inviting…. friendly and affable…. The computing aspects of regression are de-emphasized and the text leans more towards well-
prepared students.” All are still true, and I once again recommend the book for the indicated target audience.

University of Wisconsin
Madison, U.S.A. N. R. Draper

FOUNDATIONS OF MODERN PROBABILITY, 2nd edition.

Contents:
1. Measure theory — Basic notation
2. Measure theory — Key results
3. Processes, distributions, and independence
4. Random sequences, series, and averages
5. Characteristic functions and classical limit theorems
6. Conditioning and disintegration
7. Martingales and optional times
8. Markov processes and discrete-time chains
9. Random walks and renewal theory
10. Stationary processes and ergodic theory
11. Special notions of symmetry and invariance
12. Poisson and pure jump-type Markov processes
13. Gaussian processes and Brownian motion
14. Skorohod embedding and invariance principles
15. Independent increments and infinite divisibility
16. Convergence of random processes
17. Stochastic integrals and quadratic variation
18. Continuous martingales and Brownian motion
19. Feller processes and semigroup
20. Ergodic properties and Markov processes
21. Stochastic differential equations and martingale problems
22. Local time, excursions, and additive functionals
23. One-dimensional SDEs and diffusions
24. Connections with PDEs and potential theory
25. Predictability, compensation, and excessive functions
26. Semi martingales and general stochastic integration
27. Large deviations

Readership: Mathematicians, students and researchers alike, wanting a broad overview of modern probability theory

The second edition of this admirable book has grown by well over one hundred pages, including such new material as: multivariate and ratio ergodic theorems, shift coupling, Palm distributions, entropy and information, Harris recurrence, invariant measures, strong and weak ergodicity, Strassen’s LIL and the basic large deviation results. Also, a lot of existing material has been rewritten and expanded. I repeat a statement from my review of the first edition: “From the table of contents it is difficult to believe behind all these topics a streamlined readable text is at all possible. It is: Convince yourself.” Those who own the first edition should make some extra space for this second edition. Those who do not yet own a copy: buy one!

ETH - Zürich
Zürich, Switzerland. P.A.L. Embrechts

PROBABILITY MODELS FOR DNA SEQUENCE

Contents:
1. Basic models
2. Neutral complications
3. Natural selection
4. Statistical tests
5. Genome rearrangement

Readership: Mathematicians, biologists, statisticians; anyone new to the area as well as experienced readers/researchers in the area; suggested minimal background is one undergraduate course in probability although a course in stochastic processes would be helpful

The evolution of genetic characteristics of populations over generations is an important scientific frontier to mathematical modelling. It is one where probability models and statistical analysis have a fundamental and important role to play. The area requires an understanding of both the genetic science and the mathematics in order to identify problems of import and to develop, understand and criticize the corresponding probability models. The goal of this book is to introduce the reader to probability models which might explain the patterns of variability observable in DNA sequences collected from many individuals in a population.

The book begins with the Wright-Fisher model whereby one has a finite population of simple genetic characteristics (i.e. alleles A and a, or "wrinkled" and "round" peas as in Mendel’s experiments) from which the next generation is selected at random with replacement, and explores the mathematical characteristics of the model. From this model some fundamental properties of the variability in a population's distribution of genetic characteristics can be introduced and understood. Throughout the book, mathematical models and extensions to previously introduced models are developed to describe more realistically DNA sequence evolution in a population. Compli-cations considered include the ‘neutral’ ones (nonconstant population size, recombination, and population subdivision) as well as those from various forms of natural selection (directional, balancing, and background selection). Model predictions are compared to genetic data observed in the literature (more than fifty examples from the biology literature) to illustrate shortcomings of and to suggest chan-ges to the model. The book ends with some study of the evolution of whole genomes.

The focus is on mathematical development, with the mathematics routinely beyond that of a single-semester undergraduate course in probability. The writing is terse with little overview, the index thin and missing most biology terms mentioned in the text, and no glossary is provided. The book is a workbook rather than a textbook, directed more to the mathematician than to the biologist.

As an introduction to the area, the book would need supplementary material, either mathematical or biological or both. Although not intended as a textbook, it would provide a good supplemental source for a graduate course in stochastic modelling or in mathematical genomics.

University of Waterloo
Waterloo, Canada R.W. Oldford

THE ANALYSIS AND INTERPRETATION OF MULTIVARIATE DATA FOR SOCIAL SCIENTISTS.

Contents:
15. Setting the scene
16. Cluster analysis
17. Multidimensional scaling
18. Correspondence analysis
19. Principal components analysis
20. Factor analysis
21. Factor analysis for binary data
22. Factor analysis for ordered categorical variables
23. Latent class analysis for binary data
Readership: Social researchers, graduate students in the social sciences

Social science research frequently generates data that need sophisticated multivariate statistical methods for successful analysis. Students and researchers in the social sciences thus need a firm grounding in such methodology, but rarely possess either a strong background or commensurate interest in mathematics. The challenge for the instructor is, therefore, to convey the fundamentals without compromising mathematical development, but comprehensively enough to enable practitioners to understand the techniques fully and use them effectively.

This text rises admirably to the challenge. It is evenly split between descriptive multivariate methods, and inferential methods based on latent variable models. Each chapter introduces the ideas behind a technique, describes the basic methodology using as little mathematics as possible, discusses several examples fully with emphasis on the interpretation of results, and outlines some further examples for the reader to study. The descriptions are clear, and much ground is covered both economically and well. It would prove an invaluable text for its intended audience.

University of Exeter
Exeter, U.K. W.J. Krzanowski


Contents:
1. Introduction
2. Properties of estimators
3. Maximum likelihood and other methods of estimation
4. Hypothesis testing
5. Interval estimation
6. The decision - theory approach to inference
7. Bayesian inference
8. Non-parametric and robust inference
9. Computationally intensive methods
10. Generalized linear models

Readership: Undergraduate and postgraduate students, researchers in statistics

This book on statistical inference presents the classical topics on point and interval estimation and hypothesis testing, but also deals with some more recent techniques such as computationally intensive methods and generalized linear models. There is also attention to nonparametric and robust techniques and Bayesian calculations. Each chapter is followed by a collection of exercises (more than two hundred in total), which makes the book well suited for teaching. The mathematical proofs are kept to a minimum.

Limburgs Universitair Centrum
Diepenbeek, Belgium N.D.C. Veraverbeke

A FIRST COURSE IN LINEAR MODEL THEORY.

Contents:
1. A review of vector and matrix algebra
2. Properties of special matrices
3. Generalized inverses and solutions to linear systems
4. The general linear model
5. Multivariate normal and related distributions
6. Sampling from the multivariate normal distribution
7. Inference for the general linear model
8. Multiple regression models
9. Fixed effects linear models
10. Random-effects and mixed-effects models
11. Special topics (Bayesian, Kalman, longitudinal, and linear models)

A review of probability distributions

Readership: Students of linear models

This book is the end-product of lecture notes for two courses on linear models taught at the University of Connecticut by the two authors. Thus, the major part of the text is a standard (and perfectly good) presentation of the usual linear algebra, as can be seen from the contents. There were, however, a number of features that made me groan. Examples are 1. Two of the three “salient features” mentioned in the preface are: “(2) introducing generalized linear models with examples, and (3) presenting some current topics including Bayesian linear models, general additive models, dynamic linear models and longitudinal models.” Yet these two salient features occupy only an inconspicuous 25 of the 473 pages. 2. One deduces from the preface that the numerical examples in the text were added after a “suggestion” from two of the (four) series editors. There are 25 of these examples, scattered throughout the book. The data for them are to be found on the first author’s well-laid-out web site, but numbered differently from the way they are in the book. My rough count indicates that 21 of 25 examples were selected from other authors’ books; this was properly acknowledged, by the way. 3. There are many exercises but none with data to analyze. 4. When a book is referenced in the text (e.g. on page 335: “A diagnostic measure (Belsley et al., 1980)”), it would have been helpful if we were told the page number, or at least the section number. After all, the authors had to look it up.

University of Wisconsin
Madison, U.S.A. N.R. Draper


Contents:
1. Introduction
2. The logic of hierarchical linear models
3. Principles of estimation and hypothesis testing for hierarchical linear models
4. An illustration
5. Applications in organizational research
6. Applications in the study of individual change
7. Applications in meta-analysis and other cases where level-1 variances are known
8. Three-level models
9. Assessing the adequacy of hierarchical models
10. Hierarchical generalized linear models
11. Hierarchical models for latent variables
12. Models for cross-classified random effects
13. Bayesian inference for hierarchical models
14. Estimation theory

Readership: Social and behavioural scientists who fit hierarchical models

In this second edition, the authors’ order is reversed, indicating some reversal in contributions, according to the comments of the series editor. Chapters 10-13 add material emerging from recent research and Chapter 14, on Bayesian and maximum likelihood estimation, replaces the first edition’s Technical Appendix. Throughout the rest of the book, much minor tuning and polishing is apparent. Footnotes are resolved at the ends of the chapters and references are consolidated at the end of the book. The text is authoritative, well laid out, and extremely read-
BAYESIAN METHODS FOR NONLINEAR CLASSIFICATION AND REGRESSION.

Contents:
1. Introduction
2. Bayesian modelling
3. Curve fitting
4. Surface fitting
5. Classification using generalized linear models
6. Bayesian tree models
7. Partition models
8. Nearest-neighbour models
9. Multiple response models

APPENDIX A: Probability Distributions
APPENDIX B: Inferential Processes

Readership: Post-graduate students, quantitative applied researchers, statisticians

Bayesian modelling has been made universally accessible within the past decade by the development of Markov Chain Monte Carlo techniques and associated software. Introduction of the reversible jump algorithm has more recently opened up the possibilities further to models that have varying parameter dimensionalities. This book exploits these facets to the full and provides the Bayesian approach to many computationally based classification and regression methods such as MARS, CART, SUR, partitioning and nearest-neighbour. Most of the ideas and papers on which the material is drawn come from the last few years. Indeed, many of the techniques are very much still in active development, by the authors of this book among others; therefore, it is very up-to-date. The presentation is slightly marred by some careless proof-reading (e.g. the “Mahannobolis” distance on p. 188), but overall this is a fascinating account of a rapidly evolving area of statistics.

University of Exeter
Exeter, U.K. W.J. Krzanowski


Contents:
1. Introduction
2. Statistical foundation for comparison
3. Comparison in linear models
4. Nonparametric comparison
5. Comparison of rates
6. Comparison in generalized linear models
7. Additional topics of comparison in generalized linear models
8. Comparison in structural equation modeling
9. Comparison with categorical latent variables
10. Comparison in multilevel analysis

Readership: Postgraduate students, quantitative applied researchers, statisticians

The concept of comparison is fundamental to many forms of statistical analysis. Thus, while the title of this book is appropriate, it is not particularly revealing of the contents. The chapter headings give a better indication of the material covered, material that includes quite a large variety of methods that may be used for comparative purposes. The technical level of the book is reasonably high and the readers are assumed to have familiarity with linear, generalized linear and latent variable models. The primary focus is on parametric models. The majority of examples are from the social, political and economic sciences. The primary emphasis is on technical aspects of comparison with limited discussion of more general substantive issues. There is also some discussion of computational resources available for the techniques examined. As suggested in the preface, graduate students and applied researchers may find the book a convenient reference.

MRC Biostatistics Unit
Cambridge, U.K. V.T. Farewell


Contents:
1. Introduction to multilevel analysis
2. The basic two-level regression model: Introduction
3. Estimation and hypothesis testing in multilevel regression
4. Some important methodological and statistical issues
5. Analyzing longitudinal data
6. The logistic model for dichotomous data and proportions
7. Cross-classified multilevel models
8. The multilevel approach to meta-analysis
9. Multivariate multilevel regression models
10. Sample sizes and power analysis in multilevel regression
11. Advanced methods for estimation and testing
12. Multilevel factor models
13. Multilevel path models
14. Latent curve models

APPENDIX: Data and Stories

Readership: Quantitative social scientists, statisticians

In Chapter 1, the author writes that this book is intended as an introduction to the world of multilevel analysis for individuals who have a good general knowledge of analysis of variance and classical multiple regression analysis. The book has developed from the author’s courses in this area. There is an emphasis on applications in the social sciences but this does not limit its general readability. The author has chosen a technical level for the presentation that allows precision in the model specifications and the discussion of more advanced issues without detracting from its applied focus. This book provides a good reference for those who want to grasp the essentials of this widely used methodology.

MRC Biostatistics Unit
Cambridge, U.K. V.T. Farewell


Contents:
1. Introduction
2. Abstract geometrical and mechanical representations
3. Mechanical models for multidimensional medians
4. Method of least squares deviations
5. Method of least absolute deviation
6. Minimax absolute deviation method
7. Method of least median of squared deviations
8. Mechanical models for metric graphs
9. Categorical data analysis
10. Method of averages and curve fitting by splines
11. Multivariate generalisations of the method of least squares
CONFIGURAL FREQUENCY ANALYSIS METHODS.
MODELS AND APPLICATIONS. A. von Eye.

Contents:
1. Introduction: The goals and steps of configural frequency analysis
2. Log-linear base models for CFA
3. Statistical testing in global CFA
4. Descriptive measures for global CFA
5. Global models of CFA
6. Regional models of CFA
7. Comparing k samples
8. CFA of differences
9. CFA of level, variability, and shape of series of observations
10. More facets of CFA
11. Alternative approaches to CFA
12. Software to perform CFA

APPENDIX A: Introduction to Log-Linear Modelling
APPENDIX B: Table of Alpha Levels for the Benferroni and Holm Adjustments

Readership: Applied researchers and statisticians in behavioural, social, biological and medicine disciplines

Configural Frequency Analysis (CFA) is an important method for analyzing results involved with categorical and longitudinal data. It allows one to answer the question of whether individual cells or groups of cells of categorical and longitudinal data correspond significantly from expectations. This book introduces readers to the method of CFA and provides a comprehensive introduction to its techniques, models and applications. The text is divided into parts. The first part covers concepts and methods of CFA, the second introduces CFA based models, the third focuses on the CFA speciality file methods which are discussed at length and finally the last part deals with computational issues and shows how CFA can be performed using standard general purpose statistical software.

The book is written in a formal style and actual empirical data examples are used to illustrate the key concepts. Step by step program sequences are used to show readers how to employ CFA methods using commercial software packages such as SAS, SPSS, SYSTAT, S-PLUS or those specifically written to perform CFA. The text provides a most comprehensive complete overview of approaches, ideas and techniques.

Readers are expected to have completed at least an introductory statistics course. Those who have taken courses in categorical data analysis or log-linear modelling will have a distinct advantage and should find the text easy to follow. Other readers may find the text rather difficult.

South Bank University
London, U.K.
S. Starkings


Contents:
1. Introduction
2. Model construction and estimating equations
3. Generalized estimating equations
4. Residuals, diagnostics, and testing
5. Programs and datasets

Readership: Statisticians, quantitative researchers

An understanding of generalized estimating equations (GEEs) is important to those dealing with various types of correlated response data. However, there are relatively few places to look for an accessible up-to-date introduction to the topic. This book provides a comprehensive overview of GEEs and the issues involved in their use, including the distinction between population-averaged and subject-specific models. The book is clearly written and the level of algebraic and algorithmic detail is quite helpfully high. Available software is discussed and illustrated. While many readers will want to follow up references given in the text, the authors have succeeded in providing a good starting point for the understanding of GEEs.

MRC Biostatistics Unit
Cambridge, U.K.
V.T. Farewell


Contents:
PART I: Idempotent Probability Theory
1. Idempotent probability measures
2. Maxingales

PART II: Large Deviation Convergence of Semi martingales
3. Large deviation convergence
4. The method of finite-dimensional distributions
5. The method of the maxingale problem
6. Large deviation convergence of queueing processes

APPENDIX A: Auxiliary Lemmas
APPENDIX B: Notes and Remarks

Readership: Probabilists with a knowledge of large deviations theory

As its most distinctive property, an idempotent measure satisfies \( \mu(A \cup B) = \mu(A) + \mu(B) \), for all sets \( A, B \). Such measures arise in the weak convergence of a sequence of probability measures and the existence of a “large deviation principle”. Analogous set functions also appear in possibility theory and max-plus calculus.

This book presents the foundations of idempotent measure theory. Moreover, analogs for martingale properties and certain results in stochastic calculus are developed in Part I. In Part II, the approach is applied to large deviation problems. The emphasis is on general continuous-time processes and general (Tihonov) probability spaces. Applications to queueing systems (diffusion approximations) are also given.

ETH - Zürich
Zürich, Switzerland
J.F. Collamore
STOCHASTIC-PROCESS LIMITS

Contents:
1. Experiencing statistical regularity
2. Random walks in applications
3. The framework for stochastic-process limits
4. A panorama of stochastic-process limits
5. Heavy-traffic limits for fluid queues
6. Unmatched jumps in the limit process
7. More stochastic-process limits
8. Fluid queues with on-off sources
9. Single-server queues
10. Multiserver queues
11. More on the mathematical framework
12. The space $\mathcal{D}$
13. Useful functions
14. Queueing networks
15. The spaces $\mathcal{E}$ and $\mathcal{F}$

APPENDIX A: Regular Variation
APPENDIX B: Contents of the Internet Supplement

Readership: Probabilists, researchers and graduate students in operations research and queueing theory

This book deals with the topic of stochastic-process limits, i.e., limits in which a sequence of stochastic processes converges to another stochastic process, with particular attention to such limits for queues. In particular, the author emphasizes the continuous-mapping approach to obtain heavy-traffic stochastic-process limits for queues. What distinguishes this book from other books on this topic is the author's focus on stochastic-process limits with non-standard scaling and non-standard limit processes. The material is self-contained, but it is technical and a solid foundation in probability and queueing theory is beneficial to prospective readers. However, the first five chapters do provide an informal introduction to stochastic-process limits and their applications to queues, and is intended to be accessible to those with less background. This book is a must to researchers and graduate students interested in these areas.

University of Waterloo
Waterloo, Canada

S. Dreische}

TIME SERIES: APPLICATIONS TO FINANCE, N.I. Chan.

Contents:
1. Introduction
2. Probability models
3. Autoregressive moving average models
4. Estimation in the time domain
5. Examples in S-PLUS
6. Forecasting
7. Spectral analysis
8. Nonstationarity
9. Heteroskedasticity
10. Multivariate time series
11. State space models
12. Multivariate GARCH
13. Cointegrations and common trends

Readership: Academic (final-year economics and statistics undergraduates, postgraduate finance students), industry (banking, insurance)

The book gives a fairly concise treatment of the area, often referring the reader to lengthier tomes for details. Various core methods are presented via examples rather than in generality. There are exercises at the end of each chapter, but solutions are not given. Many numerical examples are worked through using S-PLUS, for which the macros are listed. There are one or two oddities of language, for example I guess ‘ergodic’ (both in the initial Definition 2.7 and the index) is ‘ergodic’. The characteristics described reflect the development of the book from a taught course and it would clearly be a very useful basis for such. Further, it provides a gateway to higher things: Chapters 8 to 13 treat more specialized topics in a concise way that encourages one to go on to further study.

Imperial College of Science, Technology and Medicine
London, U.K.

M.J. Crowley


Contents:
1. Elementary calculus: Towards Ito's formula
2. Elements in probability
3. Useful distributions in finance
4. Derivative securities
5. A discrete-time model of securities market
6. Random walks
7. The binomial model
8. Markov chains
9. Monte Carlo simulation
10. From discrete to continuous: Towards the Black-Scholes
11. Basic stochastic processes in continuous time
12. A continuous-time model for securities market

APPENDIX: Contents of the Internet Supplement

Readership: Probabilists, researchers and graduate students in operations research and queueing theory

This book deals with the topic of stochastic-process limits, i.e., limits in which a sequence of stochastic processes converges to another stochastic process, with particular attention to such limits for queues. In particular, the author emphasizes the continuous-mapping approach to obtain heavy-traffic stochastic-process limits for queues. What distinguishes this book from other books on this topic is the author's focus on stochastic-process limits with non-standard scaling and non-standard limit processes. The material is self-contained, but it is technical and a solid foundation in probability and queueing theory is beneficial to prospective readers. However, the first five chapters do provide an informal introduction to stochastic-process limits and their applications to queues, and is intended to be accessible to those with less background. This book is a must to researchers and graduate students interested in these areas.

University of Waterloo
Waterloo, Canada

S. Dreische
Readership: Readers wishing an introduction to stochastic processes underlying basic finance theory

This book is designed for the reader with little prior knowledge of mathematics, probability and statistics. It provides an elementary introduction to the necessary elements of real analysis and probability with the emphasis on discrete-time processes. The necessary stochastic analysis for continuous-time models is introduced by taking a limited mathematical background. Applications to the pricing of interest-rate derivatives and corporate debt are discussed both in discrete and continuous time. Rigour is sometimes sacrificed, but the result is a well-written introduction to probability and finance.

University of Waterloo
Waterloo, Canada
D.L. McLeish

NON-GAUSSIAN MERTON-BLACK-SCHOLES THEORY.

Contents:
1. Introduction
2. Lévy processes
3. Regular Lévy processes of exponential type in 1D
4. Pricing and hedging of contingent claims of European type
5. Perpetual American options
6. America options: finite time horizon
7. First-touch digitals
8. Barrier options
9. Multi-asset contracts
10. Investment under uncertainty and capital accumulation
11. Endogenous default and pricing of the corporate debt
12. Fast pricing of European options
13. Discrete time models
14. Feller processes of normal inverse Gaussian type
15. Pseudo-differential operators with constant symbols
16. Elements of calculus of pseudo-differential operators

Readership: Graduate students and researchers in mathematical finance

Ever since the pioneering work of Benoit Mandelbrot on stable-Pareto models in finance, researchers have worked on generalizations of the classical geometric Brownian motion model. Among the several approaches now available, Lévy-type processes play an important role. Examples include such models as the Variance-Gamma process, the Normal-Inverse-Gaussian process and the (Generalized-) Hyperbolic process. The authors of this monograph worked on the so-called KoBoL process which is a purely discontinuous Lévy process with specific Lévy measure leading to a model with suitable leptokurtic behaviour. These processes are also known under the name CGMY-process. Besides a brief introduction of the necessary mathematical theory, a detailed analysis of the pricing and hedging in a KoBoL market is given. The authors mainly use the theory of pseudo-differential operators and complex analysis, avoiding the use of Itô calculus altogether. Because of the current interest in non-Brownian models, researchers in the field will find the text useful. I found the style of writing a bit heavy; economists no doubt need an extra helping hand on the mathematics. Mathematicians will want some economics background. The book could have benefited from an extra round of text editing.

ETH-Zürich
Zürich, Switzerland
P.A.L. Embrechts

A COURSE IN FINANCIAL CALCULUS. A. Etheridge.
Cambridge University Press, 2002, pp. viii + 196, £60.00/US$85.00 Cloth; £21.95/US$30.00 Paper.

Contents:
1. Single period models
2. Binomial trees and discrete parameter martingales
3. Brownian motion
4. Stochastic calculus
5. The Black-Scholes model
6. Different payoffs
7. Bigger models

Readership: Students (final year undergraduate or first year graduate) with a good background in mathematics studying a first course in financial calculus

This book is another contribution to the avalanche of books on this topic which have appeared in recent years. This one has the merit of being relatively short and a paperback, which must make it appealing to students and to those who need a quick introduction to the material. It achieves its brevity by being fairly dense and also omitting the occasional proof. It includes exercises. It is nicely produced and elegantly laid out. I would consider adopting it as a text for a course in this topic.

Imperial College of Science Technology and Medicine
London, U.K. D.J. Hand

INTRODUCTORY ECONOMETRICS FOR FINANCE.

Contents:
1. Introduction
2. Econometric packages for modelling financial data
3. A brief overview of the classical linear regression model
4. Further issues with the classical linear regression model
5. Univariate time series modelling and forecasting
6. Multivariate models
7. Modelling long-run relationships in finance
8. Modelling volatility and correlation
9. Switching models
10. Simulation methods
11. Conducting empirical research or doing a project or dissertation in finance
12. Recent and future developments in the modelling of financial time series

APPENDIX A: A Review of Some Fundamental Mathematical and Statistical Concepts

APPENDIX B: Tables of Statistical Distributions

Readership: Finance students at the undergraduate or Masters level

From a statistical perspective, this is a gentle and elementary (if long) introduction to the particular classes of statistical models used in econometrics. It was written to fill the gap, which had appeared as more people begin to study finance in its own right, rather than as a sequel to a solid grounding in econometrics, but who still needed to know some econometrics. Such readers may not have a deep grounding in mathematics. The text introduces two popular econometrics computer packages (EViews and WinRATS) and gives commands and output from them throughout. It would have added to its value as a teaching text if it had included exercises, but perhaps at over 700 pages this would be asking too much.

Imperial College of Science Technology and Medicine
London, U.K. D.J. Hand

From the book jacket: “Few scientists have made lasting contributions to as many fields as Francis Galton. He was an important African explorer, travel writer, and geographer. He was the meteorologist who discovered the anticyclone, a pioneer in using fingerprints to identify individuals, the inventor of regression and correlation analysis in statistics, and the founder of the eugenics movement. Now, Nicholas Gillham paints an engaging portrait of this Victorian polymath.

“The book traces Galton’s ancestry (he was the grandson of Erasmus Darwin and the cousin of Charles Darwin), upbringing, training as a medical apprentice, and experience as a Cambridge undergraduate. It recounts in colourful detail Galton’s adventures as leader of his own expedition in Namibia. Darwin was always a strong influence on his cousin and a turning point in Galton’s life was the publication of The Origin of Species. Thereafter, Galton devoted most of his life to human heredity, using then novel methods such as pedigree analysis and twin studies to argue that talent and character were inherited and that humans could be selectively bred to enhance these qualities. To this end, he founded the eugenics movement, which rapidly gained momentum early in the last century. After Galton’s death, however, eugenics took a more sinister path, as in the United States, where by 1913 sixteen states had involuntary sterilization laws, and in Germany, where the goal of racial purity was pushed to its horrific limit in the “final solution.” Galton himself, Gillham writes, would have been appalled by the extremes to which eugenics was carried.

“Here then is a vibrant biography of a remarkable scientist as well as a superb portrait of science in the Victorian era.”


Oliver Wendel Holmes was born in 1841 and died in 1935. The book reviews his life and work and shows how he shaped the law of the twentieth century.


This book contains stories and anecdotes about mathematicians and other things, many being informative, humorous and/or apocryphal.


NOTES
In this new edition, over one hundred scientists have been added, previous material has been brought up to date and errors corrected.


In this second edition appropriately five hundred new entries have been added, including some new biographies, and some previous entries have been corrected and classified.


From the book jacket: “As author of the best-selling Why People Believe Weird Things and How We Believe, and Editor-in-Chief of Skeptic magazine, Michael Shermer has emerged as the nation’s number one scourge of superstition and bad science. Now, in The Borderlands of Science, he takes us to the place where real science (such as the big bang theory), borderline science (super string theory), and just plain nonsense (Big Foot) collide with one another.

“Shermer argues that science is the best lens through which to view the world, but he recognizes that it’s often difficult for most of us to tell where valid science leaves off and borderland science begins. To help us, Shermer looks at a range of topics that put the boundary line in high relief. For instance, he discusses the many ‘theories of everything’ that try to reduce the complexity of the world to a single principle, and shows how most fall into the category of pseudo-science. He examines the work of Darwin and Freud, explaining why one is among the great scientists in history, while the other has become nothing more than a historical curiosity. He also shows how Carl Sagan’s life exemplified the struggle we all face to become nothing more than a historical curiosity. He also shows how most fall into the category of pseudo-science.

“William H. Calvin’s marvellous A Brain for All Seasons argues that such cycles of cool, crash, and burn powered the pump for the enormous increase in brain size and complexity in human beings. Driven by the imperative to adapt within a generation to “whiplash” climate changes where only grass did well for a while, our ancestors learned to cooperate and innovate in hunting large grazing animals.

“Calvin’s book is structured as a travelogue that takes us around the globe and back in time. Beginning at Darwin’s home in England, Calvin sits under an oak tree and muses on what controls the speed of evolutionary “progress.” The Kalahari desert and the Sterkfontein caves in South Africa serve as the backdrop for a discussion of our ancestors’ changing diets. A drought-shrunk lake in Kenya shows how grassy mudflats become great magnets for grazing animals. And in Copenhagen, we learn what ice cores have told us about abrupt jumps in past climates.

“Perhaps the most dramatic discovery of all, though, awaits us as we fly with Calvin over the Gulf Stream and Greenland: global warming caused by human-made pollution could paradoxically trigger another sudden episode of global cooling. Because of the accumulation of greenhouse gases in the atmosphere, the oceanic “conveyor belt” that sends warmer waters into the North Atlantic could abruptly shut down. If that happens again, much of the earth could be plunged into a deep chill within a few years. Europe would become as cold and dry as Siberia. Agriculture could not adapt quickly enough to avoid worldwide famines and wars over dwindling food supplies — a crash from which it would take us many centuries to recover.

“With this warning, Calvin connects us directly to evolution and the surprises it holds. Highly illustrated, conversational, and learned, A Brain for All Seasons is a fascinating view of where we came from and where we’re going.”


From the book jacket: “Did America try to steal Soviet “cancer secrets”? And how could a cancer cure turn into a “biological atomic bomb”? Nikolai Krementsov’s compelling tale of cancer and politics is the story of a husband-and-wife team who developed a promising anticancer treatment in Stalin’s Russia, only to see their discovery entangled in Cold War rivalry, ideological conflict, and scientific turf wars.

“In 1946, Nina Klueva and Grigorii Roskin announced the discovery of a preparation effective at “dissolving” implanted tumours in mice. Preliminary clinical trials suggested that this preparation, named “KR” after its developers, might work in humans as well. The media hype surrounding KR prompted the U.S. ambassador to the Soviet Union to seek U.S.-Soviet cooperation in perfecting the
average, smoking either pays for itself or generates revenues for the states.

"Viscusi's research and his conclusions — not only about the risk assessed of smoking and the societal costs of smoking but also about the dangers of second-hand smoke and the disturbing ways the tobacco windfall is being spent by the states — radically reconfigures the terms of the smoking debate. As a step in this direction, he includes policy recommendations that call on federal authorities to adopt a new warnings system and to encourage the development of safer cigarettes. Smoke-Filled Rooms takes a hard look at the economic realities of smoking. In some respects, it runs against the grain of conventional thinking. But its perspective provides for an informed and realistic debate about the legal, financial, and social consequences of the tobacco lawsuits."


From the preface: "In 1986, a committee of the National Research Council (NRC), the principal operating arm of the National Academy of Sciences and National Academy of Engineering, produced a report requested by Congress titled The Airliner Cabin Environment: Air Quality and Safety. That report recommended the elimination of smoking on most domestic airline flights and a number of other actions to address health and safety problems and to obtain better data on cabin air quality. In response to that report, the Federal Aviation Administration (FAA) took several actions, including the banning of smoking on all domestic flights. However, the health complaints of passengers and cabin crew continue. Their complaints tend to be broad and non-specific and to have multiple possible causes, including air contaminants, so it is difficult to define or discern a precise illness or syndrome.

"In this report, the Committee on Air Quality in Passenger Cabins of Commercial Aircraft reviews what is known about air quality in passenger cabins, emphasizing studies conducted since the 1986 report. The committee specifically examined the aircraft environmental control systems, the sources of contaminants in aircraft cabins, and the toxicity and health effects associated with these contaminants; it provides a number of recommendations for potential approaches for improving cabin air quality."


From the book: "Following on in the footsteps of its acclaimed and popular predecessor, this new edition builds on the successful feature that engaged readers of the first edition: it explains the nuts and bolts of epidemiology and serves as a handbook for those who wish to do epidemiology. It uses relevant exercises and examples, taken from real life, to illustrate how to set up a study; it aims to help produce valid results that will satisfy grant bodies, ethical committees and journal editors; ultimately it bridges the gap between theory and practice. By making the subject so easily accessible, it will be an excellent introduction for anyone who is training in epidemiology and public health, and for all those involved in medicine. This edition includes numerous improvements and several new chapters which will further enhance its appeal and usefulness."
From the preface: "Pharmaceutical research and development is a lengthy process involving drug discovery, laboratory development, animal studies, clinical development, regulatory registration, and post marketing surveillance. To ensure the efficacy, safety, and good characteristics of pharmaceutical products, regulatory agencies have developed guidance and guidelines for good pharmaceutical practices to assist the sponsors and researchers in drug research and development. Even after a pharmaceutical product is approved, it must be tested for its identity, strength, purity, and reproducibility before it can be released for use. This book provides not only a comprehensive and unified presentation of designs and analyses utilized at different stages of pharmaceutical science, and recent developments in the area of drug research and development."

"This book is a useful reference for pharmaceutical scientists and biostatisticians in the pharmaceutical industry, regulatory agencies, and academia, and other scientists who are in the related fields of pharmaceutical development and health. The primary focus of this book is on biopharmaceutical statistical applications that commonly occur during various stages of pharmaceutical research and development. This book provides clear, illustrated explanations of how statistical design and methodology can be used for the demonstration of quality, safety, and efficacy in pharmaceutical research and development."


From the book cover: "Molecular biology has come to dominate our perceptions of life, health and disease. In the decades following World War II, the Medical Research Council Laboratory of Molecular Biology at Cambridge became a world-renowned centre of this emerging discipline. It was here that Crick and Watson, Kendrew and Perutz, Sanger and Brenner pursued their celebrated investigations. This important new study is the first to examine the creation and expansion of molecular biology through the prism of this remarkable institution. Firmly placing the history of the laboratory in the postwar context, the author shows how molecular biology was built at the bench and through the wide circulation of tools, models and researchers, as well as in governmental committees, international exhibitions and television studios."


From the book jacket: "Nancy Andreasen, a leading neuroscientist who is Editor-in-Chief of the prestigious American Journal of Psychiatry and recipient of the illustrious National Medal of Science, offers here a state-of-the art look at what we know about the human brain and the human genome—and shows how these two vast branches of knowledge are coming together in a boldly ambitious effort to conquer mental illness."

"Scientists today know more about the brain than ever before, thanks to new imaging techniques and to discoveries in neuroscience and molecular biology. Andreasen gives us an engaging and readable description of how it all works, from the billions of neurons to the tiny thalamus to the moral monitor in our prefrontal cortex. She also shows the progress made in mapping the human genome, whose 30,000-40,000 genes are almost all active in the brain. In perhaps the most fascinating section of the book, we read gripping stories of the people who develop mental illness, the friends and relatives who share their suffering, the physicians who treat them, and the scientists who study them so that better treatments can be found. This section covers four major disorders - schizophrenia, manic depression, anxiety disorders and dementia - revealing what causes them, what happens to the mind and brain, and how the illnesses are treated. Finally, the book shows how the powerful tools of genetics and neuroscience will be combined during the next decades to build healthier brains and minds."


From the book jacket: "George Bernard Shaw thought that a Catholic university was a contradiction in terms — "university" represents intellectual freedom and "Catholic" represents dogmatic belief. Scholars, university administrators, and even the pope have staked out positions about the accuracy of Shaw’s comment. In this refreshing book, George Dennis O’Brien argues that this contradiction arises both from the secular university’s limited concept of academic freedom and the church’s defective notion of dogma."

“Truth is a central concept for both university and church, and O’Brien’s book is built on the idea that there are different areas of truth — scientific, artistic, and religious — each with its own proper warrant and "truth." With a sharper distinction in hand, he argues that one can reverse Shaw’s comparison and uncover communal dogma and Christian freedom, university "infallibility" and dogmatic "fallibility."

“For anyone concerned about the place of religion in higher education, The Idea of a Catholic University will be essential reading.”


From the book jacket: "One of the great intellectual battles of modern times is between evolution and religion. Until now, they have been considered completely irreconcilable theories of origin and existence. David Sloan Wilson’s Darwin’s Cathedral takes the radical step of joining the two, in the process proposing an evolutionary theory of religion that shakes both evolutionary biology and social theory at their foundations."

“The key, argues Wilson, is to think of society as an organism, an old idea that has received new life based on recent developments in evolutionary biology. If society is an organism, can we then think of morality and religion as biologically and culturally evolved adaptations that enable human groups to function as single units rather than mere collections of individuals? Wilson brings a variety of evidence to bear on this question, from both the biological and social sciences. From Calvinism in sixteenth-century Geneva to Balinese water temples, from hunter-gatherer societies to urban America, Wilson demonstrates how religions have enabled people to achieve by collective action what they never could do alone. He also includes a chapter considering forgiveness from an evolutionary perspective and concludes by discussing how all social organizations, including science, could benefit by incorporating elements of religion."

“Religious believers often compare their communities to single organisms and even to insect colonies. Astoundingly, Wilson shows that they might be literally correct. Intended for any educated reader, Darwin’s Cathedral will change forever the way we view the relations among evolution, religion, and human society.”


From the book cover: “The need for a comprehensive volume that reviews both the processes and issues involved in developing, administering, and validating large-scale assessment programs has never been greater. These programs are used for many purposes, including instructional program evaluation, promotion, certification, graduation, and accountability. One of the greatest problems we face is how to deal with special needs and bilingual populations. Examining these processes and issues is the mission of this volume, which is organized into four parts (Validity Issues, Technical Issues, Implementation Issues, and Epilogue). Each chapter follows a common structure: Overview of critical issues, review of relevant research, descriptions of current assessment
methodologies, and recommendations for the future research and practice.

"Written by nationally recognized scholars, Large-Scale Assessment Programs For All Students: Validity, Technical Adequacy, and Implementation will appeal to anyone seriously involved in large scale testing, including educators, policymakers, testing company personnel, and researchers in education, psychology, and public policy."


From the book cover: "In this ambitious and sophisticated study of the history of statistics, which begins with probability theory in the seventeenth century, Alain Desrosières shows how the evolution of modern statistics has been incredibly bound up with the knowledge and power of governments. He traces the complex reciprocity between modern governments and the mathematical artefacts that both dictate the duties of the state and measure its successes.


From the book jacket: "Despite John Stuart Mill's widely respected contributions to philosophy and political economy, his work on political philosophy has received a much more mixed response. Some critics have even charged that Mill's liberalism was part of a political project to restrain, rather than foster, democracy.

"Redirecting attention to Mill as a political thinker, Nadia Urbiniti argues that this claim misrepresents Mill's thinking. Although he did not elaborate a theory of democracy, Mill did devise new avenues of democratic participation in government that could absorb the transformation of politics engendered by the institution of representation. More generally, Urbiniti assesses Mill's contribution to modern democratic theory by critiquing the dominant "two liberties" narrative that has shaped Mill scholarship over the past several decades. As Urbiniti shows, neither Isaiah Berlin's theory of negative and positive freedom nor Quentin Skinner's theory of liberty as freedom from domination adequately captures Mill's notion of political theory.

"Drawing on Mill's often overlooked writings on ancient Greece, Urginiti shows that Mill saw the ideal representative government as a "polis of the moderns," a metamorphosis of the unique features of the Athenian polis: the deliberate character of its institutions and politics; the Socratic ethos; and the cooperative implications of political agonism and dissent. The ancient Greeks, Urbiniti shows, and Athenians in particular, are the key to understanding Mill's contribution to modern democratic theory and the theory of political liberty.

"Urbiniti concludes by demonstrating the importance of Mill's deliberative model of politics to the contemporary debate on liberal and republican views of liberty. Her fresh and persuasive approach not only clarifies Mill's political ideas but also illustrates how they can help enrich our contemporary understanding of democracy."


From the book cover: "In October 2000, the US National Institute of Standards and Technology selected the block cipher Rijndael as the Advanced Encryption Standard (AES). AES is expected to gradually replace the present Data Encryption Standard (DES) as the most widely applied data encryption technology.

"This book by the designers of the block cipher presents Rijndael from scratch. The underlying mathematics and the wide trail strategy as the basic design idea are explained in detail and the basics of differential and linear cryptanalysis are reworked. Subsequent chapters review all known attacks against the Rijndael structure and deal with implementation and optimization issues. Finally, other ciphers related to Rijndael are presented."


From the book cover: "Benoit B. Mandelbrot's world-renowned pioneering research in fractal geometry has deeply affected several areas of mathematics, physics, finance, and other disciplines, and has also influenced teaching. This book explores the fractal themes of "self-affinity" and "globality." The ubiquity of extreme temporal and spatial variability impressed itself vividly upon the author in the early 1960s. He soon concluded that many phenomena represent a new state of indeterminism he called "wild." The usual statistical techniques fail, and altogether new mathematical tools are needed to explore this subject. The book contributes to their development and will therefore be of use in diverse scientific communities.

"The first third of the volume consists of extensive introductory material written especially for this book. It incorporates an "Overview of fractals and multifractals," a careful general introduction to "cartoon" fractal and multifractal functions — numerous pedagogical innovations, and — last but not least, a number of new observations and mathematical conjectures.

"This volume consists otherwise of reprints of the author's classical old papers that center on a detailed study of fractional Brownian functions, which are most widely known as the mathematical tools behind the celebrated fractal landscapes. The fractional Brownian functions brought global (long memory) dependence into geomorphology, and also into other areas, including engineering, hydrology, climatology, and finance. Favoured additional themes are R/S statistical analysis, the multiplicity, of distinct fractal dimensions under self affinity and 1/f noise. Many chapters begin with newly-written forewords."


From the book jacket: "Early Theorists believed that science promised certainty. Built on a foundation of fact and constructed with irrefutable and trustworthy tools, science consistently produced knowledge. Then disturbing discoveries made by twentieth-century scientists revealed that this knowledge will always be fundamentally incomplete and that a true understanding of the world is ultimately beyond our grasp.

"In this thoughtful and compelling book, physicist F. David Peat examines the basic philosophic certainty that characterized the thinking of humankind through the nineteenth century and contrasts it with the startling fall of certainty in the twentieth. Indeed, the nineteenth century was marked by a boundless optimism and confidence in the power of progress and technology. Our ebullience was so great, our belief in science so firm, that in 1900 the President of Britain's Royal Society proclaimed that everything of importance had already been discovered by science.

"But it was not long before the seeds of a scientific revolution began to take root.

"The concepts proposed by Newtonian physics were summarily exploded by the radical ideas embedded in both quantum theory and the general theory of relativity. We began to see that our knowledge was at best, incomplete – and would probably remain that way forever. Chaos theory went so far as to demonstrate the inherent limits to knowing, predicting, and controlling the world around us.

"This new world view had a profound effect, not only on science, but also on art, literature, philosophy, and societal relations. The twenty-first century now begins with a humble acceptance of – although not necessarily comfort with – the
from a few basic rules that are generalizations of the rules of ordinary calculus. These results are summarized in a useful table. Well-known zero-one matrices, together with some new ones, are defined, their mathematical roles explained, and their useful properties presented. “The basic building blocks of classical statistics, namely, the score vector, the information matrix, and the Cramer-Rao lower bound, are obtained for a sequence of linear econometric models of increasing statistical complexity. From these are obtained interactive interpretations of maximum likelihood estimators, linking them with efficient econometric estimators. Classical test statistics are also derived and compared for hypotheses of interest.”

From the introduction: “A multilingual glossary cannot ignore certain differences in the usage of equivalent terms. Therefore, some discrepancies will be found between the definitions of specific terms in the six languages. Examples, too, must vary to a certain degree, but basic examples, and in particular those in non-Roman scripts, have been retained in all language versions of the Glossary. In some cases, the definitions differ somewhat from those found in general dictionaries, having been adapted specifically to toponymic usage.”

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FUNDAMENTALS OF COMPUTER GRAPHICS. P. Shirley. Natick, Massachusetts: A.K. Peters, 2002, pp. xiii + 378, US$49.00; £35.00; €57.00.


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