

## Statistical Science In The Courtroom Statistics For Social And Behavioral Sciences

Describes ways of assessing forensic science evidence and the means of communicating the assessment to a court of law. The aim of this work is to ensure that the courts consider seriously the probability of the evidence of association.

Students in the sciences, economics, psychology, social sciences, and medicine take introductory statistics. Statistics is increasingly offered at the high school level as well. However, statistics can be notoriously difficult to teach as it is seen by many students as difficult and boring, if not irrelevant to their subject of choice. To help dispel these misconceptions, Gelman and Nolan have put together this fascinating and thought-provoking book. Based on years of teaching experience the book provides a wealth of demonstrations, examples and projects that involve active student participation. Part I of the book presents a large selection of activities for introductory statistics courses and combines chapters such as, 'First week of class', with exercises to break the ice and get students talking; then 'Descriptive statistics', collecting and displaying data; then follows the traditional topics - linear regression, data collection, probability and inference. Part II gives tips on what does and what doesn't work in class: how to set up effective demonstrations and examples, how to encourage students to participate in class and work effectively in group projects. A sample course plan is provided. Part III presents material for more advanced courses on topics such as decision theory, Bayesian statistics and sampling.

The Reference Manual on Scientific Evidence, Third Edition, assists judges in managing cases involving complex scientific and technical evidence by describing the basic tenets of key scientific fields from which legal evidence is typically derived and by providing examples of cases in which that evidence has been used. First published in 1994 by the Federal Judicial Center, the Reference Manual on Scientific Evidence has been relied upon in the legal and academic communities and is often cited by various courts and others. Judges faced with disputes over the admissibility of scientific and technical evidence refer to the manual to help them better understand and evaluate the relevance, reliability and usefulness of the evidence being proffered. The manual is not intended to tell judges what is good science and what is not. Instead, it serves to help judges identify issues on which experts are likely to differ and to guide the inquiry of the court in seeking an informed resolution of the conflict. The core of the manual consists of a series of chapters (reference guides) on various scientific topics, each authored by an expert in that field. The topics have been chosen by an oversight committee because of their complexity and frequency in litigation. Each chapter is intended to provide a general overview of the topic in lay terms, identifying issues that will be useful to judges and others in the legal profession. They are written for a non-technical audience and are not intended as exhaustive presentations of the topic. Rather, the chapters seek to provide judges with the basic information in an area of science, to allow them to have an informed conversation with the experts and attorneys.

This classic text, first published in 1990, is designed to introduce law students, law teachers, practitioners, and judges to the basic ideas of mathematical probability and statistics as they have been applied in the law. The third edition includes over twenty new sections, including the addition of timely topics, like New York City police stops, exonerations in death-sentence cases, projecting airline costs, and new material on various statistical techniques such as the randomized response survey technique, rare-events meta-analysis, competing risks, and negative binomial regression. The book consists of sections of exposition followed by real-world cases and case studies in which statistical data have played a role. The reader is asked to apply the theory to the facts, to calculate results (a hand calculator is sufficient), and to explore legal issues raised by quantitative findings. The authors' calculations and comments are given in the back of the book. As with previous editions, the cases and case studies reflect a broad variety of legal subjects, including antidiscrimination, mass torts, taxation, school finance, identification evidence, preventive detention, handwriting disputes, voting, environmental protection, antitrust, sampling for insurance audits, and the death penalty. A chapter on epidemiology was added in the second edition. In 1991, the first edition was selected by the University of Michigan Law Review as one of the important law books of the year.

This handbook addresses legal reasoning and argumentation from a logical, philosophical and legal perspective. The main forms of legal reasoning and argumentation are covered in an exhaustive and critical fashion, and are analysed in connection with more general types (and problems) of reasoning. Accordingly, the subject matter of the handbook divides in three parts. The first one introduces and discusses the basic concepts of practical reasoning. The second one discusses the general structures and procedures of reasoning and argumentation that are relevant to legal discourse. The third one looks at their instantiations and developments of these aspects of argumentation as they are put to work in the law, in different areas and applications of legal reasoning.

This edited volume gives a new and integrated introduction to item response models (predominantly used in measurement applications in psychology, education, and other social science areas) from the viewpoint of the statistical theory of generalized linear and nonlinear mixed models. The new framework allows the domain of item response models to be co-ordinated and broadened to emphasize their explanatory uses beyond their standard descriptive uses. The basic explanatory principle is that item responses can be modeled as a function of predictors of various kinds. The predictors can be (a) characteristics of items, of persons, and of combinations of persons and items; (b) observed or latent (of either items or persons); and they can be (c) latent continuous or latent categorical. In this way a broad range of models is generated, including a wide range of extant item response models as well as some new ones. Within this range, models with explanatory predictors are given special attention in this book, but we also discuss descriptive models. Note that the term "item responses" does not just refer to the traditional "test data," but are broadly conceived as categorical data from a repeated observations design. Hence, data from studies with repeated observations experimental designs, or with longitudinal designs, may also be modelled. The book starts with a four-chapter section containing an introduction to the framework. The remaining chapters describe models for ordered-category data, multilevel models, models for differential item functioning, multidimensional models, models for local item dependency, and mixture models. It also includes a chapter on the statistical background and one on useful software. In order to make the task easier for the reader, a unified approach to notation and model description is followed throughout the chapters, and a single data set is used in most examples to make it easier to see how the many models are related. For all major examples, computer commands from the SAS package are provided that can be used to estimate the results for each model. In addition, sample commands are provided for other major computer packages. Paul De Boeck is Professor of Psychology at K.U. Leuven (Belgium), and Mark Wilson is Professor of Education at UC Berkeley (USA). They are also co-editors (along with Pamela Moss) of a new journal entitled Measurement: Interdisciplinary Research and Perspectives. The chapter authors are members of a collaborative group of psychometricians and statisticians centered on K.U. Leuven and UC Berkeley.

We all like to know how reliable and how risky certain situations are, and our increasing reliance on technology has led to the need for more precise assessments than ever before. Such precision has resulted in efforts both to sharpen the notions of risk and reliability, and to quantify them. Quantification is required for normative decision-making, especially decisions pertaining to our safety and wellbeing. Increasingly in recent years Bayesian methods have become key to such quantifications. Reliability and Risk provides a comprehensive overview of the mathematical and statistical aspects of risk and reliability analysis, from a Bayesian perspective. This book sets out to change the way in which we think about reliability and survival analysis by casting them in the broader context of decision-making. This is achieved by: Providing a broad coverage of the diverse aspects of reliability, including: multivariate failure models, dynamic reliability, event history analysis, non-parametric Bayes, competing risks, co-operative and competing systems, and signature analysis. Covering the essentials of Bayesian statistics and exchangeability, enabling readers who are unfamiliar with Bayesian inference to benefit from the book. Introducing the notion of "composite reliability", or the collective reliability of a population of items. Discussing the relationship between notions of reliability and

survival analysis and econometrics and financial risk. Reliability and Risk can most profitably be used by practitioners and research workers in reliability and survivability as a source of information, reference, and open problems. It can also form the basis of a graduate level course in reliability and risk analysis for students in statistics, biostatistics, engineering (industrial, nuclear, systems), operations research, and other mathematically oriented scientists, wherein the instructor could supplement the material with examples and problems.

This book constitutes the refereed proceedings of the 14th European Conference on Machine Learning, ECML 2003, held in Cavtat-Dubrovnik, Croatia in September 2003 in conjunction with PKDD 2003. The 40 revised full papers presented together with 4 invited contributions were carefully reviewed and, together with another 40 ones for PKDD 2003, selected from a total of 332 submissions. The papers address all current issues in machine learning including support vector machine, inductive inference, feature selection algorithms, reinforcement learning, preference learning, probabilistic grammatical inference, decision tree learning, clustering, classification, agent learning, Markov networks, boosting, statistical parsing, Bayesian learning, supervised learning, and multi-instance learning. Now available in paperback, this book is organized in a way that emphasizes both the theory and applications of the various variance estimating techniques. Results are often presented in the form of theorems; proofs are deleted when trivial or when a reference is readily available. It applies to large, complex surveys; and to provide an easy reference for the survey researcher who is faced with the problem of estimating variances for real survey data.

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This book explains the correct logical approach to analysis of forensic scientific evidence. The focus is on general methods of analysis applicable to all forms of evidence. It starts by explaining the general principles and then applies them to issues in DNA and other important forms of scientific evidence as examples. Like the first edition, the book analyses real legal cases and judgments rather than hypothetical examples and shows how the problems perceived in those cases would have been solved by a correct logical approach. The book is written to be understood both by forensic scientists preparing their evidence and by lawyers and judges who have to deal with it. The analysis is tied back both to basic scientific principles and to the principles of the law of evidence. This book will also be essential reading for law students taking evidence or forensic science papers and science students studying the application of their scientific specialisation to forensic questions.

The leading resource in the statistical evaluation and interpretation of forensic evidence The third edition of *Statistics and the Evaluation of Evidence for Forensic Scientists* is fully updated to provide the latest research and developments in the use of statistical techniques to evaluate and interpret evidence. Courts are increasingly aware of the importance of proper evidence assessment when there is an element of uncertainty. Because of the increasing availability of data, the role of statistical and probabilistic reasoning is gaining a higher profile in criminal cases. That's why lawyers, forensic scientists, graduate students, and researchers will find this book an essential resource, one which explores how forensic evidence can be evaluated and interpreted statistically. It's written as an accessible source of information for all those with an interest in the evaluation and interpretation of forensic scientific evidence. Discusses the entire chain of reasoning—from evidence pre-assessment to court presentation; Includes material for the understanding of evidence interpretation for single and multiple trace evidence; Provides real examples and data for improved understanding. Since the first edition of this book was published in 1995, this respected series has remained a leading resource in the statistical evaluation of forensic evidence. It shares knowledge from authors in the fields of statistics and forensic science who are international experts in the area of evidence evaluation and interpretation. This book helps people to deal with uncertainty related to scientific evidence and propositions. It introduces a method of reasoning that shows how to update beliefs coherently and to act rationally. In this edition, readers can find new information on the topics of elicitation, subjective probabilities, decision analysis, and cognitive bias, all discussed in a Bayesian framework.

This book is designed to help researchers better design and analyze observational data from quasi-experimental studies and improve the validity of research on causal claims. It provides clear guidance on the use of different propensity score analysis (PSA) methods, from the fundamentals to complex, cutting-edge techniques. Experts in the field introduce underlying concepts and current issues and review relevant software programs for PSA. The book addresses the steps in propensity score estimation, including the use of generalized boosted models, how to identify which matching methods work best with specific types of data, and the evaluation of balance results on key background covariates after matching. Also covered are applications of PSA with complex data, working with missing data, controlling for unobserved confounding, and the extension of PSA to prognostic score analysis for causal inference. User-friendly features include statistical program codes and application examples. Data and software code for the examples are available at the companion website ([www.guilford.com/pan-materials](http://www.guilford.com/pan-materials)).

When DNA profiling was first introduced into the American legal system in 1987, it was heralded as a technology that would revolutionize law enforcement. As an investigative tool, it has lived up to much of this hype—it is regularly used to track down unknown criminals, put murderers and rapists behind bars, and exonerate the innocent. Yet, this promise took ten turbulent years to be fulfilled. In *Genetic Witness*, Jay D. Aronson uncovers the dramatic early history of DNA profiling that has been obscured by the technique's recent success. He demonstrates that robust quality control and quality assurance measures were initially nonexistent, interpretation of test results was based more on assumption than empirical evidence, and the technique was susceptible to error at every stage. Most of these issues came to light only through defense challenges to what prosecutors claimed to be an infallible technology. Although this process was fraught with controversy, inefficiency, and personal antagonism, the quality of DNA evidence improved dramatically as a result. Aronson argues, however, that the dream of a perfect identification technology remains unrealized.

A valuable guide to a successful career as a statistician *A Career in Statistics: Beyond the Numbers* prepares readers for careers in statistics by emphasizing essential concepts and practices beyond the technical tools provided in standard courses and texts. This insider's guide from internationally recognized applied statisticians helps readers decide whether a career in statistics is right for them, provides hands-on guidance on how to prepare for such a career, and shows how to succeed on the job. The book provides non-technical guidance for a successful career. The authors' extensive industrial experience is supplemented by insights from contributing authors from government and academia, Carol Joyce Blumberg, Leonard M. Gaines, Lynne B. Hare, William Q. Meeker, and Josef Schmee. Following an introductory chapter that provides an overview of the field, the authors discuss the various dimensions of a career in applied statistics in three succinct parts: *The Work of a Statistician* describes the day-to-day activities of applied statisticians in business and industry, official government, and various other application areas, highlighting the work environment and major on-the-job challenges *Preparing for a Successful Career in Statistics* describes the personal traits that characterize successful statisticians, the education that they need to acquire, and approaches for securing the right job

Building a Successful Career as a Statistician offers practical guidance for addressing key challenges that statisticians face on the job, such as project initiation and execution, effective communication, publicizing successes, ethical considerations, and gathering good data; alternative career paths are also described. The book concludes with an in-depth examination of careers for statisticians in academia as well as tips to help them stay on top of their field throughout their careers. Each chapter includes thought-provoking discussion questions and a Major Takeaways section that outlines key concepts. Real-world examples illustrate key points, and an FTP site provides additional information on selected topics. A Career in Statistics is an invaluable guide for individuals who are considering or have decided on a career in statistics as well as for statisticians already on the job who want to accelerate their path to success. It also serves as a suitable book for courses on statistical consulting, statistical practice, and statistics in the workplace at the undergraduate and graduate levels.

Forensic Science in Court: The Role of the Expert Witness is a practical handbook aimed at forensic science students, to help them prepare as an expert witness when presenting their evidence in court. Written in a clear, accessible manner, the book guides the student through the legal process and shows them how to handle evidence, write reports without ambiguity through to the more practical aspects of what to do when appearing in court. The book also offers advice on what to expect when working with lawyers in a courtroom situation. An essential text for all students taking forensic science courses who are required to take modules on how to present their evidence in court. The book is also an invaluable reference for any scientist requested to give an opinion in a legal context. · Integrates law and science in an easy to understand format · Inclusion of case studies throughout · Includes straightforward statistics essential for the forensic science student · An invaluable, practical textbook for anyone appearing as an expert witness in court · Unique in its approach aimed at forensic science students in a courtroom environment. This book presents an analysis including the impact of more than fifteen federal statutes-ranging from the Civil Rights Act of 1866 to the Fair and Accurate Credit Transactions Act-on the banking.

The theory of probability grew up in gaming rooms, graduated to insurance companies, and was eventually applied by philosophers to all kinds of ordinary choices. This collection represents the best recent work on the subject and includes essays by Clark Glymour, James H. Fetzer, and Wesley C. Salmon.

This title brings forensic scientists and chemists up-to-date on the latest instrumental methods for analysing trace evidence, including mass spectrometry, image analysis, DIOS-MS, ELISA characterization, statistical validation, and others. Illustrates comparative analysis of trace evidence by both old and new methods. Explains why some newer methods are superior to older, established methods. Includes chapters on analysis of DNA, ink, dyes, glitter, gun powder traces, condom trace evidence, footwear impressions, toolmark impressions, surveillance videos, glass particles, and dirt. Discusses applications such as mass spectrometry, image analysis, desorption-ionization on silicon mass spectrometry (DIOS-MS), ELISA characterization, and statistical validation.

The volume covers different theoretical approaches to legal evidence including the nature and function of evidence, proof, and law of evidence. It also covers a wide range of contemporary debates on topics such as truth, proof, economics, gender, and race.

This seventh book in the best-selling monograph series presents articles addressing current issues and strategic questions at the cross-roads of science, technology and the law, including the selection and use of scientific expert witnesses, scientific uncertainty in the courtroom, public health quarantines, takings and much more.

"This book should have a place on the bookshelf of every forensic scientist who cares about the science of evidence interpretation" Dr. Ian Evett, Principal Forensic Services Ltd, London, UK. Continuing developments in science and technology mean that the amounts of information forensic scientists are able to provide for criminal investigations is ever increasing. The commensurate increase in complexity creates difficulties for scientists and lawyers with regard to evaluation and interpretation, notably with respect to issues of inference and decision. Probability theory, implemented through graphical methods, and specifically Bayesian networks, provides powerful methods to deal with this complexity. Extensions of these methods to elements of decision theory provide further support and assistance to the judicial system. Bayesian Networks for Probabilistic Inference and Decision Analysis in Forensic Science provides a unique and comprehensive introduction to the use of Bayesian decision networks for the evaluation and interpretation of scientific findings in forensic science, and for the support of decision-makers in their scientific and legal tasks. • Includes self-contained introductions to probability and decision theory. • Develops the characteristics of Bayesian networks, object-oriented Bayesian networks and their extension to decision models. • Features implementation of the methodology with reference to commercial and academically available software. • Presents standard networks and their extensions that can be easily implemented and that can assist in the reader's own analysis of real cases. • Provides a technique for structuring problems and organizing data based on methods and principles of scientific reasoning. • Contains a method for the construction of coherent and defensible arguments for the analysis and evaluation of scientific findings and for decisions based on them. • Is written in a lucid style, suitable for forensic scientists and lawyers with minimal mathematical background. • Includes a foreword by Ian Evett. The clear and accessible style of this second edition makes this book ideal for all forensic scientists, applied statisticians and graduate students wishing to evaluate forensic findings from the perspective of probability and decision analysis. It will also appeal to lawyers and other scientists and professionals interested in the evaluation and interpretation of forensic findings, including decision making based on scientific information.

Consideration was given to more advanced theoretical approaches and novel applications of reliability to ensure that topics having a futuristic impact were specifically included. The entries have been categorized into seven parts, each emphasizing a theme that seems poised for the future development of reliability as an academic discipline with relevance. The topics, when linked with utility theory, constitute the science base of risk analysis.

This book outlines Bayesian statistical analysis in great detail, from the development of a model through the process of making statistical inference. The key feature of this book is that it covers models that are most commonly used in social

science research - including the linear regression model, generalized linear models, hierarchical models, and multivariate regression models - and it thoroughly develops each real-data example in painstaking detail.

Statistical science as organized in formal academic departments is relatively new. With a few exceptions, most Statistics and Biostatistics departments have been created within the past 60 years. This book consists of a set of memoirs, one for each department in the U.S. created by the mid-1960s. The memoirs describe key aspects of the department's history -- its founding, its growth, key people in its development, success stories (such as major research accomplishments) and the occasional failure story, PhD graduates who have had a significant impact, its impact on statistical education, and a summary of where the department stands today and its vision for the future. Read here all about how departments such as at Berkeley, Chicago, Harvard, and Stanford started and how they got to where they are today. The book should also be of interests to scholars in the field of disciplinary history.

The Handbook of Probability presents an equal balance of theory and direct applications in a non-technical, yet comprehensive format so that researchers of various backgrounds can use the reference either as a primer for understanding basic probability theory or as a more advanced research tool for specific projects requiring a deeper understanding or application of probability. The wide-ranging applications of probability presented make it useful for researchers who need to make interdisciplinary connections in their work, as well as professors who teach a range of students (social sciences, education, business, behavioral sciences, etc.) and need to bring probability into greater, concrete perspective for these students.

A self-contained examination of all aspects of statistical evidence evaluation in forensic science, from theory to concrete applications. Expert testimony relying on scientific and other specialized evidence has come under increased scrutiny by the legal system. A trilogy of recent U.S. Supreme Court cases has assigned judges the task of assessing the relevance and reliability of proposed expert testimony. In conjunction with the Federal judiciary, the American Association for the Advancement of Science has initiated a project to provide judges indicating a need with their own expert. This concern with the proper interpretation of scientific evidence, especially that of a probabilistic nature, has also occurred in England, Australia and in several European countries. Statistical Science in the Courtroom is a collection of articles written by statisticians and legal scholars who have been concerned with problems arising in the use of statistical evidence. A number of articles describe DNA evidence and the difficulties of properly calculating the probability that a random individual's profile would "match" that of the evidence as well as the proper way to interpret the result. In addition to the technical issues, several authors tell about their experiences in court. A few have become disenchanted with their involvement and describe the events that led them to devote less time to this application. Other articles describe the role of statistical evidence in cases concerning discrimination against minorities, product liability, environmental regulation, the appropriateness and fairness of sentences and how being involved in legal statistics has raised interesting statistical problems requiring further research.

There are approximately 150 million people of African descent in Latin America yet Afro-descendants have been consistently marginalized as undesirable elements of the society. Latin America has nevertheless long prided itself on its absence of U.S.-styled state-mandated Jim Crow racial segregation laws. This book disrupts the traditional narrative of Latin America's legally benign racial past by comprehensively examining the existence of customary laws of racial regulation and the historic complicity of Latin American states in erecting and sustaining racial hierarchies. Tanya Katerí Hernández is the first author to consider the salience of the customary law of race regulation for the contemporary development of racial equality laws across the region. Therefore, the book has a particular relevance for the contemporary U.S. racial context in which Jim Crow laws have long been abolished and a "post-racial" rhetoric undermines the commitment to racial equality laws and policies amidst a backdrop of continued inequality.

The interpretation and evaluation of scientific evidence and its presentation in a court of law is central both to the role of the forensic scientist as an expert witness and to the interests of justice. This book aims to provide a thorough and detailed discussion of the principles and practice of evidence interpretation and evaluation by using real cases by way of illustration. The presentation is appropriate for students of forensic science or related disciplines at advanced undergraduate and master's level or for practitioners engaged in continuing professional development activity. The book is structured in three sections. The first sets the scene by describing and debating the issues around the admissibility and reliability of scientific evidence presented to the court. In the second section, the principles underpinning interpretation and evaluation are explained, including discussion of those formal statistical methods founded on Bayesian inference. The following chapters present perspectives on the evaluation and presentation of evidence in the context of a single type or class of scientific evidence, from DNA to the analysis of documents. For each, the science underpinning the analysis and interpretation of the forensic materials is explained, followed by the presentation of cases which illustrate the variety of approaches that have been taken in providing expert scientific opinion. Uniting forensics, law, and social science in meaningful and relevant ways, *Forensic Science and the Administration of Justice*, by Kevin J. Strom and Matthew J. Hickman, is structured around current research on how forensic evidence is being used and how it is impacting the justice system. This unique book—written by nationally known scholars in the field—includes five sections that explore the demand for forensic services, the quality of forensic services, the utility of forensic services, post-conviction forensic issues, and the future role of forensic science in the administration of justice. The authors offer policy-relevant directions for both the criminal justice and forensic fields and demonstrate how the role of the crime laboratory in the American justice system is evolving in concert with technological advances as well as changing demands and competing pressures for laboratory resources.

The Handbook for Statistical Genetics is widely regarded as the reference work in the field. However, the field has developed considerably over the past three years. In particular the modeling of genetic networks has advanced considerably via the evolution of microarray analysis. As a consequence the 3rd edition of the handbook contains a much expanded section on Network Modeling, including 5 new chapters covering metabolic networks, graphical modeling and inference and simulation of pedigrees and genealogies. Other chapters new to the 3rd edition include Human Population Genetics, Genome-wide Association Studies, Family-based Association Studies, Pharmacogenetics, Epigenetics, Ethic and Insurance. As with the second Edition, the Handbook includes a glossary of terms, acronyms and abbreviations, and features extensive cross-referencing between the chapters, tying the different areas together. With heavy use of up-to-date examples, real-life case studies and references to web-based resources, this continues to be must-have reference in a vital area of research. Edited by the leading international authorities in the field. David Balding - Department of Epidemiology & Public Health, Imperial College An advisor for our Probability & Statistics series, Professor Balding is also a previous Wiley author, having written *Weight-of-Evidence for Forensic DNA Profiles*, as well as having edited the two previous editions of HSG. With over 20 years teaching experience, he's also had dozens of articles published in numerous international journals. Martin Bishop – Head of the Bioinformatics Division at the HGMP Resource Centre As well as the first two editions of HSG, Dr Bishop has edited a number of introductory books on the application of informatics to molecular biology and genetics. He is the Associate Editor of the journal *Bioinformatics* and Managing Editor of *Briefings in Bioinformatics*. Chris Cannings – Division of Genomic Medicine, University of Sheffield With over 40 years teaching in the area, Professor Cannings has published over 100 papers and is on the editorial board of many related journals. Co-editor of the two previous editions of HSG, he also authored a book on this topic.

Examines the impact of DNA technology on issues of ethics, civil liberties, privacy, and security.

Risk has become one of the main topics in fields as diverse as engineering, medicine and economics, and it is also studied by social scientists, psychologists and legal scholars. But the topic of risk also leads to more fundamental questions such as: What is risk? What can

decision theory contribute to the analysis of risk? What does the human perception of risk mean for society? How should we judge whether a risk is morally acceptable or not? Over the last couple of decades questions like these have attracted interest from philosophers and other scholars into risk theory. This handbook provides for an overview into key topics in a major new field of research. It addresses a wide range of topics, ranging from decision theory, risk perception to ethics and social implications of risk, and it also addresses specific case studies. It aims to promote communication and information among all those who are interested in theoretical issues concerning risk and uncertainty. This handbook brings together internationally leading philosophers and scholars from other disciplines who work on risk theory. The contributions are accessibly written and highly relevant to issues that are studied by risk scholars. We hope that the Handbook of Risk Theory will be a helpful starting point for all risk scholars who are interested in broadening and deepening their current perspectives.

The increasingly arcane world of DNA profiling demands that those needing to understand at least some of it must find a source of reliable and understandable information. Combining material from the successful Wiley Encyclopedia of Forensic Science with newly commissioned and updated material, the Editors have used their own extensive experience in criminal casework across the world to compile an informative guide that will provide knowledge and thought-provoking articles of interest to anyone involved or interested in the use of DNA in the forensic context. Following extensive introductory chapters covering forensic DNA profiling and forensic genetics, this comprehensive volume presents a substantial breadth of material covering: Fundamental material – including sources of DNA, validation, and accreditation Analysis and interpretation – including, extraction, quantification, amplification and interpretation of electropherograms (epgs) Evaluation – including mixtures, low template, and transfer Applications – databases, paternity and kinship, mitochondrial-DNA, wildlife DNA, single-nucleotide polymorphism, phenotyping and familial searching Court - report writing, discovery, cross examination, and current controversies With contributions from leading experts across the whole gamut of forensic science, this volume is intended to be authoritative but not authoritarian, informative but comprehensible, and comprehensive but concise. It will prove to be a valuable addition, and useful resource, for scientists, lawyers, teachers, criminologists, and judges.

The proceedings of ECML/PKDD2003 are published in two volumes: the P- ceedings of the 14th European Conference on Machine Learning (LNAI 2837) and the Proceedings of the 7th European Conference on Principles and Practice of Knowledge Discovery in Databases (LNAI 2838). The two conferences were held on September 22–26, 2003 in Cavtat, a small tourist town in the vicinity of Dubrovnik, Croatia. As machine learning and knowledge discovery are two highly related ?elds, theco-

locationofbothconferencesisbene?cialforbothresearchcommunities.In Cavtat, ECML and PKDD were co-located for the third time in a row, following the successful co-location of the two European conferences in Freiburg (2001) and Helsinki (2002). The co-location of ECML2003 and PKDD2003 resulted in a joint program for the two conferences, including paper presentations, invited talks, tutorials, and workshops. Out of 332 submitted papers, 40 were accepted for publication in the ECML2003proceedings,and40wereacceptedforpublicationinthePKDD2003 proceedings. All the submitted papers were reviewed by three referees. In ad- tion to submitted papers, the conference program consisted of four invited talks, four tutorials, seven workshops, two tutorials combined with a workshop, and a discovery challenge.

Statistical methodology plays a key role in ensuring that DNA evidence is collected, interpreted, analyzed and presented correctly. With the recent advances in computer technology, this methodology is more complex than ever before. There are a growing number of books in the area but none are devoted to the computational analysis of evidence. This book presents the methodology of statistical DNA forensics with an emphasis on the use of computational techniques to analyze and interpret forensic evidence.

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