[Books] An Introduction To Forensic Genetics

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An Introduction to Forensic Genetics-William Goodwin 2007-11-27 An Introduction to Forensic Genetics is a comprehensive introduction to this fast moving area from the collection of evidence at the scene of a crime to the presentation of that evidence in a legal context. The last few years have seen significant advances in the subject and the development and application of genetics has revolutionised forensic science. This book begins with the key concepts needed to fully appreciate the subject and moves on to examine the latest developments in the field, illustrated throughout with references to relevant casework. In addition to the technology involved in generating a DNA profile, the underlying population biology and statistical interpretation are also covered. The evaluation and presentation of DNA evidence in court is discussed as well with guidance on the evaluation process and how court reports and statements should be presented. An accessible introduction to Forensic Genetics from the collection of evidence to the presentation of that evidence in a legal context. Includes case studies to enhance student understanding. Includes the latest developments in the field focusing on the technology used today and that which is likely to be used in the future. Accessible treatment of population biology and statistics associated with forensic evidence. This book offers undergraduate students of Forensic Science an accessible approach to the subject that will have direct relevance to their courses. An Introduction to Forensic Genetics is also an invaluable resource for postgraduates and practising forensic scientists looking for a good introduction to the field.

Introduction to Forensic DNA Evidence for Criminal Justice Professionals-Jane Moira Taupin 2017-07-27 The use of DNA profiling in forensic cases has been considered the most innovative technique in forensic science since fingerprinting, yet for those with limited scientific knowledge, understanding DNA enough to utilize it properly can be a daunting task. Introduction to Forensic DNA Evidence for Criminal Justice Professionals is designed for nonscience professionals and provides an accessible introduction to the crime scene DNA "world". Forensic Practitioner's Guide to the Interpretation of Complex DNA Profiles places the main concepts of DNA profiling into context and fills a niche that is unoccupied in current literature. The book begins with an introduction to basic forensic genetics, covering a brief historical description of the development and harmonization of STR markers and national DNA databases. The laws of statistics are described, along with the likelihood ratio based on Hardy-Weinberg equilibrium and alternative models considering sub-structuring and relatedness. The historical development of low template mixture analysis, theory and practice, is also described, so the reader has a full understanding of rationale and progression. Evaluation of evidence and statement writing is described in detail, along with common pitfalls and their avoidance. The authors have been at the forefront of the revolution, having made substantial contributions to theory and practice over the past two decades. All methods described are open-source and freely available, supported by sets of test-data and links to web-sites with further information. This book is written primarily for the biologist with little or no statistical training. However, sufficient information will also be provided for the experienced statistician. Consequently, the book appeals to a diverse audience. Covers short tandem repeat (STR) analysis, including database searching and massive parallel sequencing (both STRs and SNPs). Encourages dissemination and understanding of probabilistic genotyping by including practical examples of varying complexity. Written by authors intimately involved with software development, training at international workshops and reporting cases worldwide using the methods described in this book.

Forensic Genetics in the Governance of Crime-Helena Machado 2020-01-01 This open access book uses a critical sociological perspective to explore contemporary ways of reformulating the governance of crime through genetics. Through the lens of scientific knowledge and genetic technology, Machado and Granja offer a unique
perspective on current trends in crime governance. They explore the place and role of genetics in criminal justice systems, and show how classical and contemporary social theory can help address challenges posed by social processes. Weaving together the uses, consequences, and limitations of DNA, the volume addresses the governance of crime. Cutting-edge methods and research techniques are also integrated to address crucial aspects of this social reality. Finally, the authors examine new challenges emerging from recent paradigm shifts within forensic genetics, moving away from the construction of evidence as presented in the courtroom to the production of intelligence guiding criminal investigations.

Fundamentals of Forensic DNA Typing-John M. Butler 2009-09-30 Fundamentals of Forensic DNA Typing is written with a broad viewpoint. It examines the methods of current forensic DNA typing, focusing on short tandem repeats (STRs). It encompasses current forensic DNA analysis methods, as well as biology, technology, and genetic interpretation. This book reviews the methods of forensic DNA testing used in the first two decades since early 1980’s, and it offers perspectives on future trends in this field, including new genetic markers and new technologies. Furthermore, it explains the process of DNA testing from collection of samples through DNA extraction, DNA quantitation, DNA amplification, and statistical interpretation. The book also discusses DNA databases, which play an important role in law enforcement investigations. In addition, there is a discussion about ethical concerns in retaining DNA profiles and the issues involved when people use a database to search for close relatives. Students of forensic DNA analysis, forensic scientists, and members of the law enforcement and legal professions who want to know more about STR typing will find this book invaluable. Includes a glossary with over 400 terms for quick reference of unfamiliar terms as well as an acronym guide to decipher the DNA dialect.

Mass Identifications-Daniel Kling 2021-05-03 Mass Identifications: Statistical Methods in Forensic Genetics summarizes the state-of-the-art in the field, including methods and recent development in genetics (sequencing). The book authors focus on practical applications and implementation, helping readers determine how to approach the problem of individuals using DNA and statistically summarize evidence. Written by leading experts in the field for forensic scientists, geneticists, forensic anthropologists, and pathologists working with identifications, the book is ideal for scientists and practitioners in many areas. Focuses on methods, challenges and solutions in DVI cases Covers the use of DNA databases searches and the statistical evaluation of genetic identifications, the book is ideal for scientists and practitioners in many areas. Focuses on methods, challenges and solutions in DVI cases.

Forensic DNA Analysis-Elena Pilli 2021-03-31 Forensic DNA Analysis: Technological Development and Innovative Applications provides a fascinating overview of new and innovative technologies and current applications in forensic genetics. Edited by two forensic experts with many years of forensic crime experience with the Italian police and with prestigious academic universities, the volume takes an interdisciplinary perspective, the volume presents an introduction to genome polymorphisms, discusses, forensic genetics markers, presents a variety of new methods and techniques in forensic genetics, and looks at a selection of new technological innovations and inventions now available from commercial vendors. The book is an important resource for scientists, researchers, and other experts in the field who will find it of interest for its exhaustive discussion of the most important technological innovations in forensic genetics. For those newer to the field, the volume will be an invaluable reference guide to the forensic world.

The Evaluation of Forensic DNA Evidence-National Research Council 1996-12-12 In 1992 the National Research Council issued DNA Technology in Forensic Science, a book that documented the state of the art in this emerging field. Recently, this volume was brought to worldwide attention in the murder trial of celebrity O. J. Simpson. The Evaluation of Forensic DNA Evidence reports on developments in population genetics and statistics since the committee convened in 1984 to create the book that proved controversial or that have been misapplied in the courts. This volume offers recommendations for handling DNA samples, performing calculations, and other aspects of using DNA as a forensic tool—modifying some recommendations presented in the 1992 volume. The update addresses two major areas: Determination of DNA profiles. The committee considers how laboratory errors (particularly false matches) can arise, how errors might be reduced, and how to take into account the fact that the error rate can never be reduced to zero. Interpretation of a finding as DNA profile of a suspect or victim matches the evidence DNA. The committee addresses controversies in population genetics, exploring the problems that arise from the mixture of groups and subgroups in the American population and how this substructure can be accounted for in calculating frequencies. This volume examines statistical issues in interpreting frequencies as probabilities, including adjustments when a suspect is found through a database search. The committee includes a detailed discussion of what its recommendations would mean in the courtroom, with numerous case citations. By resolving several remaining issues in the evaluation of this increasingly important area of forensic evidence, this technical update will be important to forensic scientists and population geneticists—and helpful to attorneys, judges, and others who need to understand DNA and the law. Anyone working in laboratories and in the courts or anyone studying this issue should own this book.

Forensic DNA Profiling-Jo-Anne Bright 2019-12-20 DNA testing and its forensic analysis are recognized as the “gold standard” in forensic identification science methods. However, there is a great need for a hands-on step-by-step guide to teach the forensic DNA community how to interpret DNA mixtures, how to assign a likelihood ratio, and how to use the subsequent likelihood ratio when reporting interpretation conclusions. Forensic DNA Profiling: A Practical Guide to Assigning Likelihood Ratios will provide a roadmap for labs all over the world and the next generation of analysts who need this foundational understanding. The techniques used in forensic DNA analysis are based upon the accepted principles of molecular biology. The interpretation of a good-quality DNA profile generated from a crime scene stain from a single-source donor provides an unambiguous result when using the most modern forensic DNA methods. Unfortunately, many crime scene profiles are not single source. They are described as mixed since they contain DNA from two or more individuals. Interpretation of DNA mixtures represents one of the greatest challenges to the forensic DNA analyst. As such, the book introduces terms used to describe DNA profiles and profile interpretation. Chapters explain DNA extraction methods, the polymerase chain reaction (PCR), capillary electrophoresis (CE), likelihood ratios (LRs) and their interpretation, and population genetic models—including Mendelian inheritance and Hardy-Weinberg equilibrium. It is important that analysts understand how LRs are generated in a probabilistic framework, ideally with an appreciation of both semicontinuous and fully continuous probabilistic approaches. KEY FEATURES: • The first book to focus entirely on DNA mixtures and the complexities involved with interpreting the results • Takes a hands-on approach offering theory with worked examples and exercises to be easily understood and implementable by laboratory personnel • New methods, heretofore unpublished previously, provide a means to innovate deconvoluting a mixed DNA profile, assign an LR, and appropriately report the weight of evidence • Includes a chapter on assigning LRs for closed relatives (i.e., “It’s not me, it was my brother”), and discusses strategies for the validation of probabilistic genotyping software Forensic DNA Profiling fills the void for labs unfamiliar with LRs, and moving to probabilistic solutions, and for labs already familiar with LRs, but wishing to understand how they are calculated in more detail. The book will be a welcome read for lab professionals and technicians, students, and legal professionals seeking to understand and apply the techniques covered.

Studyguide for an Introduction to Forensic Genetics by Goodwin, William-Cram101 Textbook Reviews 2013-05 Never HIGHLIGHT a Book Again Includes all testable terms, concepts, persons, places, and events. Cram101 Just the FACTS101 studyguides gives all of the outlines, highlights, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanies: 9780872893795. This item is printed on demand.

Forensic DNA Analysis-J. Thomas McClintock 2008-02-19 In its short but active history, the use of DNA typing has revolutionized criminal investigations. It is almost inconceivable to bring a case to trial without positive identification through what is now our most accurate means. Proficiency with the methodology, principles, and interpretation of DNA evidence is crucial for today’s criminalist.

Silent Witness-Henry Erlich 2020 “Forensic DNA evidence has helped convict the guilty, exonerate the wrongfully convicted, identify victims of genocide, and reunite families torn apart by war and repressive regimes.
Yet many of the scientific, legal, and ethical concepts that underpin forensic DNA evidence remain unclear to the general public, judges, prosecutors, defense attorneys and students of law, forensic sciences, ethics, and genetics. Silent Witness uses a combination of articles on the current science and technology and development of DNA forensic analysis, and discusses the implications of this evidence to the courts and society. The book presents the latest cases involving DNA in forensic science and explores the implications of the role of DNA in forensic science, as well as providing a critical reflection upon the major issues involved in DNA evidence and the implications of DNA evidence in the construction of DNA databases and democratic involvement and transparency in governance.

A Guide to Forensic DNA Profiling—Scott Bader 2016-03-21 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 exclusion, quantification, amplification and interpretation of electropherograms (epgs) Evaluation—including mixtures, low template, and transfer Applications—databases, 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 comprehensive, and comprehensive but concise. It will prove to be a valuable addition, and useful resource, for scientists, lawyers, teachers, and students.

Forensic Biology—Richard Li 2015-03-11 Over the last several years, new research and developments in analysis methods and practice have led to rapid advancements in forensic biology. Identifying critical points of knowledge and new methodological approaches in the field, the Second Edition focuses on forensic serology and forensic DNA analysis. It provides students and professionals with the knowledge and skills they need to enter and contribute to this fast-growing discipline.

Forensic DNA Collection at Death Scenes—Rhonda Williams, PhD., F-ABC 2014-03-27 DNA evidence collected from death scenes is one of the most important tools in law enforcement, death investigation, medical examiner and pathologist investigations—providing insights into cause and manner of death as well as the identification of the responsible person or persons. Ineffective collection procedures can result in the loss of evidence being altered or lost during transportation of the body. Using real death scene photos and actual cases as examples, this comprehensive volume presents a substantial breadth of material covering: Fundamental material—including sources of DNA, validation, and accreditation Analysis and interpretation—including exclusion, quantification, amplification and interpretation of electropherograms (epgs) Evaluation—including mixtures, low template, and transfer Applications—databases, 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 comprehensive, and comprehensive but concise. It will prove to be a valuable addition, and useful resource, for scientists, lawyers, teachers, and students.

Genetic Suspects—Richard Hindmarsh 2010-08-12 As DNA forensic profiling and databasing become established as key technologies in the toolbox of the forensic sciences, their expanding use raises important issues that promise to touch everyone's lives. In an authoritative global investigation of a diverse range of countries, including those at the forefront of these developments and use, this book identifies and provides critical reflection upon the major issues involved in DNA evidence and the implications of DNA evidence in the construction of DNA databases and democratic involvement and transparency in governance.

Studyguide for an Introduction to Forensic Genetics by Goodwin, Dr William, ISBN 9780470010259—Cram101 Textbook Reviews 2014-05-30 Never Highlight a Book Again! Includes all testable terms, concepts, persons, places, and events. Cram101 Just the FACTS101 studyguides gives all of the outlines, highlights, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompaniments: 9780470010259. This item is printed on demand.

Wildlife DNA Analysis—Adrian Linacre 2013-03-27 Clearly structured throughout, the introduction highlights the different types of crime where these techniques are regularly used. This chapter includes a discussion as to who performs forensic wildlife examinations, the standardisation and validation of methods, and the role of the expert witness in this type of alleged crime. This is followed by a detailed section on the science behind DNA typing including the problems in isolating DNA from trace material and subsequent genetic analysis are also covered. The book then undertakes a comprehensive review of species testing using DNA, including a step-by-step guide to sequence comparisons. A comparison of the types of markers used in species testing highlights the criteria for a genetic marker. A full set of case histories illustrates the use of the different markers used. The book details the use of genetic markers to link two or more hairs/feather/leaves/needles to the same individual organism and the software used in population assignment. The problems and possibilities in isolating markers, along with the construction of allele databases are discussed in this chapter. The book concludes with evaluation and reporting of genetic evidence in wildlife forensic science illustrated by examples of witness statements.

Forensic Analysis—Suresh Shetty 2016-09-07 It is my pleasure to place before you the book “Forensic Analysis: From Death to Justice” which presents one of the major portions of the broad specialty of Forensic Science comprising mainly of Thanatology and Criminalistics. This book has been designed to incorporate a wide range of new ideas and unique works from all authors from topics like Forensic Engineering, Forensic Entomology and Crime Scene Investigation. I hope that it will be useful to practitioners of forensic medicine, experts, pathologists, law makers, investigating authorities, undergraduate and postgraduate medical school graduates of medicine.

Microbial Forensics—Bruce Budowle 2019-11-30 Microbial Forensics, Third Edition, serves as a complete reference on the discipline, describing the advances, challenges and opportunities that are integral in applying science to help solve future biocrimes. New chapters include: Microbial Source Tracking, Clinical Recognition, Bioinformatics, and Quality Assurance. This book is intended for a wide audience, but will be indispensable to forensic scientists and researchers interested in contributing to the growing field of microbial forensics. Biologists and microbiologists, the legal and judicial system, and the international community involved with Biological Weapons Treaties will also find this volume invaluable. Presents new and expanded content that includes a statistical analysis of forensic data, legal admissibility and standards of evidence Discusses actual cases of forensic bioterrorism Includes contributions from editors and authors who are leading experts in the field, with primary experience in the application of this fast-growing discipline.

Genetic Policing—Robin Williams 2013-05-13 This book is about the increasing significance of DNA profiling for crime investigation in modern society. It focuses on developments in the UK as the world-leader in the development and application of forensic DNA technology and in the construction of DNA databases as an essential element in the successful use of DNA for forensic purposes. The book uses data collected during the course of...
Forensic Biology - Richard Li 2008-04-24 Designed as an accessible introduction to basic scientific principles and their application in professional practice, Forensic Biology provides a concise overview of the field. Focusing solely on the science behind the forensic analysis of biological evidence, this book highlights the principles, methods, and techniques used in forensic serological and forensic DNA analysis. Divided into two areas, the first addresses the identification of biological fluids including blood, semen, and saliva. Chapters instruct on the identification techniques involved in presumptive and confirmatory tests. The second area covers the individualization of biological evidence using forensic DNA techniques. The book demonstrates extraction methods, quantitation methods, DNA profiling analysis, and interpretation of results. Each technique introduced in this text is preceded by a brief background of its development and the basic principles that support the technique and its applications. All methods are discussed in detail and accompanied by schematic illustrations where appropriate. Each chapter presents study questions, and references. Instructors have access to a CD containing PowerPoint lecture slides. Emphasizing the fundamentals of basic science and its application to forensic biology, this book provides a solid scientific grounding and familiarity with not just the principles of biological and biochemical processes that occur in forensic analysis, but also the language and vocabulary of forensic biology. The explanations are accessible and straightforward, and informative to facilitate effective learning.

Relationship Inference with Familias and R - Thore Egesdal 2015-12-24 Relationship Inference in Familias and R discusses the use of Familias and R software to understand genetic kinship of two or more DNA samples. This software is commonly used for forensic cases to establish paternity, identify victims or analyze genetic evidence at crime scenes when kinship is involved. The book explores utilizing Familias software and R packages for difficult situations including inbred families, mutations and missing data from degraded DNA. The book additionally addresses identification following mass disasters, familial searching, non-autosomal marker analysis and relationships in mass disasters. The second part of the book focuses on the statistical issues such as estimation and uncertainty of model parameters. Although written for use with human DNA, the principles can be applied to non-human genetics for animal pedigrees and/or analysis of plants for agriculture purposes. The book contains necessary tools to evaluate any type of forensic case where kinship is an issue. This volume focuses on the core material and omits most general background material on probability, statistics and forensic genetics. Each chapter includes exercises with available solutions The web page familias.name contains supporting material.

Manual of Forensic Science - Anna Barbaro 2017-12-14 A truly international and multi-disciplinary compendium of current best practices authored by top practitioners from around the world, the book covers current trends and techniques in the following disciplines within the broad area of forensic science: forensic biology, photography, ballistics, latent prints, forensic genetics and DNA, questioned documents, forensic toxicology, forensic clinical medicine, forensic pathology, forensic odontology, forensic anthropology, forensic entomology, forensic biometry, forensic psychology and profiling, law comparison and ethics, and much more. The book serves as an invaluable resource and handbook for forensic professionals throughout the world.

Encyclopedia of Forensic Sciences - 2012-12-28 Forensic science includes all aspects of investigating a crime, including: chemistry, biology and physics, and also incorporates countless other specialties. Today, the service offered under the guise of "forensic science" includes specialties from virtually all aspects of modern science, medicine, engineering, mathematics and technology. The Encyclopedia of Forensic Sciences, Second Edition is a reference source that will inform both the crime scene worker and the laboratory worker of each other's protocol, procedures and limitations. Written by leading scientists in each area, every article is peer reviewed to establish clarity, accuracy, and comprehensiveness. As reflected in the specialties of its Editorial Board, the contents covers the core theories, methods and techniques employed by forensic scientists - and applications of these that are used in forensic analysis. This 4-volume set represents a 30% growth in articles from the first edition, with a particular increase in coverage of DNA and digital forensics Includes an international collection of contributors. The second edition features a new 21-member editorial board, half of which are internationally based. Includes over 500 articles, approximately 10pp on average Each article features a) suggested readings which point readers to additional sources for more information, b) a list of related Web sites, c) a 5-10 word glossary and definition paragraph, and d) cross-references to related articles in the encyclopedia Available online via SciVerse ScienceDirect. Please visit www.info.sciverse.com for more information This new edition continues the reputation of the first edition, which was awarded an Honorable Mention in the prestigious Dartmouth Medal competition for 2001. This award honors the creation of reference works of outstanding quality and significance, and is sponsored by the RUSA Committee of the American Library Association.

Nonhuman DNA Typing - Heather Miller Coyle 2007-08-28 The association of a suspect with the victim or crime scene through DNA evidence is one of the most powerful statements of complicity in a crime imaginable. No category of evidence has ever had the complete capacity to convict or exonerate an accused so absolutely in the eyes of the public. With the discriminatory powers of DNA and the variety of DNA markers now in regular use, the one thing keeping a third of all cases unsolved is the lack of human DNA evidence. However, the identification of polymorphic genetic loci in cats, dogs, plants, insects, bacteria, and viruses can provide the critical link between suspect and scene in the absence of human DNA. Non-Human DNA Typing: Theory and Casework Applications provides an introduction to the basic science underlying the emerging field of non-human DNA typing. It examines the use of non-human DNA evidence not just in homicide cases, but also in drug trafficking, poaching of endangered species, livestock fraud, and missing persons, as well as the identification of primary and secondary crime scenes. The book demonstrates the recognition, collection, and preservation of biological evidence at a crime scene, techniques of DNA fingerprinting, and DNA profiling. Using a wide variety of examples, applications, and case studies, the author describes the STR analysis of canines and feline samples, insects, and fungi, and their role as evidence in forensic science. Chapters consider the development of testing methods for animal evidence, soil DNA typing, and the use of DNA typing in wildlife investigations. A useful appendix includes an overview of the history of forensic serology and DNA. Combining science, case examples, legal decisions, and references, Non-Human DNA Typing: Theory and Casework Applications presents the forensic and legal applications of non-human DNA evidence for scientists, law enforcement, and attorneys.

Forensic DNA Technology - Mark A. Farley 2019-07-23 Forensic DNA Technology examines the legal and scientific issues relating to the implementation of DNA print technology in both the crime laboratory and the courtroom. Chapters have been written by many of the country's leading experts and trace the underlying theory and historical development of this technology, as well as the methodology utilized in the Restriction Fragment Length Polymorphisms (RFLP) and Polymerase Chain Reaction (PCR) techniques. The effect of environmental contaminants on the evidence and the statistical analysis of population genetics data as it relates to the potential of this technology for individualizing the donor of the questioned sample are also addressed. Other topics include the proposed guidelines for using this technology in the crime laboratory, the perspective of the prosecution and the defense, the legal standards for determining the admissibility and weight of such evidence at trial. Finally, the issues of validation and the standards for forensic science are brought into focus in a detailed study of actual case work. Forensic scientists, prosecuting attorneys, defense attorneys, libraries, and all scientists working with DNA technology should consider this a "must have" book.

An Introduction to Forensic Geoscience - Elisa Bergslien 2012-04-30 "Introduces geological fundamentals through medium of forensic science--"
the implications of genetic analyses on forensic affairs. This global perspective is presented in three parts: modes of inheritance and reproduction and taxonomic implications; current technological approaches and future perspectives; and a comprehensive systematization of the types of applications and organisms. Finally, a critical revision of the current investigative expert systems and future perspectives is undertaken. This book provides a collection of international research, thereby constituting a reference platform for the forensic community and an advanced textbook for graduate students. It encompasses the theoretical bases of the field, and presents in the context of both perspectives of forensic action — probative and investigative — a comprehensive coverage of the current applications and technological state of the art.

An Introduction to Genetic Engineering—Desmond S. T. Nicholl 2002-02-07 The author presents a basic introduction to the world of genetic engineering. Copyright © Libri GmbH. All rights reserved.

Forensic DNA Analysis—Jaiprakash G. Shewale 2013-08-19 The field of forensic DNA analysis has grown immensely in the past two decades and genotyping of biological samples is now routinely performed in human identification (HID) laboratories. Application areas include paternity testing, forensic casework, family lineage studies, identification of human remains, and DNA databasing. Forensic DNA Analysis:

Genetic Witness—Jay Aronson 2007-10-11 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.

Forensic Plant Science—Jane H Bock 2015-11-17 Forensic botany is the application of plant science to the resolution of legal questions. A plant’s anatomy and its ecological requirements are in some cases species specific and require taxonomic verification; correct interpretation of botanical evidence can give vital information about a crime scene or a suspect or victim. The use of botanical evidence in legal investigations in North America is relatively recent. The first botanical testimony to be heard in a North American court concerned the kidnapping and murder of Charles Lindbergh’s baby boy and the conviction of Bruno Hauptmann in 1935. Today, forensic botany encompasses numerous subdisciplines of plant science, such as plant anatomy, taxonomy, ecology, palynology, and diatomology, and interfaces with other disciplines, e.g., molecular biology, limnology and oceanography. Forensic Plant Science presents chapters on plant science evidence, plant anatomy, plant taxonomic evidence, plant ecology, case studies for all of the above, as well as the educational pathways for the future of forensic plant science. Provides techniques, collection methods, and analysis of digested plant materials.

An Introduction to Genetic Engineering—Desmond S. T. Nicholl 2002-02-07 The author presents a basic introduction to the world of genetic engineering. Copyright © Libri GmbH. All rights reserved.

Forensic DNA Analysis—Jaiprakash G. Shewale 2013-08-19 The field of forensic DNA analysis has grown immensely in the past two decades and genotyping of biological samples is now routinely performed in human identification (HID) laboratories. Application areas include paternity testing, forensic casework, family lineage studies, identification of human remains, and DNA databasing. Forensic DNA Analysis:

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Forensic Botany—Heather Miller Coyle 2004-09-15 Increasingly, forensic scientists use plant evidence to reconstruct crimes. The forensic aspects of this subject require an understanding of what is necessary for botanical evidence to be accepted in our judicial system. Bringing together the latest information into a single resource, Forensic Botany: Principles and Applications to Criminal Casework introduces the basic science underlying this emerging field of forensic botany. Contributors discuss the recognition of pertinent plant evidence at a crime scene, the appropriate collection and preservation of the material, and maintenance of a chain of custody. They also explain scientific testing methods, the validation of new forensic techniques, and admissibility criteria for court. An overview of plant biology and historical developments in forensic DNA analysis is also included, as well as case examples featuring the use of botanical evidence in a variety of criminal cases. In an effort to build the scientific foundation for this promising field, this book provides definitive coverage of forensic botany with detailed applications and case examples. It familiarizes forensic scientists with the role of botanical evidence in criminal investigations and its potential value in the pursuit of justice.

Weight-of-Evidence for Forensic DNA Profiles—David J. Balding 2015-05-18 DNA evidence is widely used in the modern justice system. Statistical methodology plays a key role in ensuring that this evidence is collected, interpreted, analysed and presented correctly. This book is a guide to assessing DNA evidence and presenting that evidence in a courtroom setting. It offers practical guidance to forensic scientists with little dependence on mathematical ability, and provides the scientist with the understanding they require to apply the methods in their work. Since the publication of the first edition of this book in 2005 there have been many incremental changes, and one dramatic change which is the emergence of low template DNA (LTDNA) profiles. This second edition is edited and expanded to cover the basics of LTDNA technology. The author’s own open-source R code likeLTD is described and used for worked examples in the book. Commercial and free software are also covered.

Weight-of-Evidence for Forensic DNA Profiles—David J. Balding 2005-04-08 Assessing Weight-of-Evidence for DNA Profiles is an excellent introductory text to the use of statistical analysis for assessing DNA evidence. It offers practical guidance to forensic scientists with little dependence on mathematical ability as the book includes background information on statistics – including likelihood ratios – population genetics, and courtroom issues. The author, who is highly experienced in this field, has illustrated the book throughout with his own experiences as well as providing a theoretical underpinning to the subject. It is an ideal choice for forensic scientists and lawyers, as well as statisticians and population geneticists with an interest in forensic science and DNA.