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KEY=ANALYSIS - BAILEE SWANSON

Studyguide for Advanced Genetic Analysis Genes, Genomes, and Networks in Eukaryotes by Meneely, Philip, ISBN 9780199219827

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Advanced Genetic Analysis Genes, Genomes, and Networks in Eukaryotes

Oxford University Press **Advanced Genetic Analysis** explores the question " Drawing on the latest experimental tools, including microarrays, RNAi, and bioinformatics approaches, it provides a state-of-the-art review of the field, but in a truly student-friendly manner.

Genetics Genes, Genomes, and Evolution

Oxford University Press Recent advances that allow scientists to quickly and accurately sequence a genome have revolutionized our view of the structure and function of genes as well as our understanding of evolution. A new era of genetics is underway, one that allows us to fully embrace Dobzhansky's famous statement that "Nothing in biology makes sense except in the light of evolution". **Genetics: Genes, Genomes, and Evolution** presents the fundamental principles of genetics and molecular biology from an evolutionary perspective as informed by genome analysis. By using what has been learned from the analyses of bacterial and eukaryotic genomes as its basis, the book unites evolution, genomics, and genetics in one narrative approach. Genomic analysis is inherently both molecular and evolutionary, and every chapter is approached from this unified perspective. Similarly, genomic studies have provided a deeper appreciation of the profound relationships between all organisms - something reflected in the book's integrated discussion of bacterial and eukaryotic evolution, genetics and genomics. It is an approach that provides students with a uniquely flexible and contemporary view of genetics, genomics, and evolution. Online Resource Centre:

- Video tutorials: a series of videos that provide deeper, step-by-step explanations of a range of topics featured in the text.
- Flashcards: electronic flashcards covering the key terms from the text. For registered adopters of the text: - Digital image library: Includes electronic files in PowerPoint format of every illustration, photo, graph and table from the text
- Lecture notes: Editable lecture notes in PowerPoint format for each chapter help make preparing lectures faster and easier than ever. Each chapter's presentation includes a succinct outline of key concepts, and incorporates the graphics from the chapter
- Library of exam-style questions: a suite of questions from which you can pick potential

assignments and exams. - Test bank of multiple-choice questions: a ready-made electronic testing resource that can be customized by lecturers and delivered via their institution's virtual learning environment. - Solutions to all questions featured in the book: solutions written by the authors help make the grading of homework assignments easier. - Journal Clubs: a series of questions that guide your students through the reading and interpretation of a research paper that relates to the subject matter of a given chapter. Each Journal club includes model answers for lecturers. - Instructor's guide: The instructor's guide discusses the educational approach taken by Genetics: Genes, Genomes, and Evolution in more detail, why this approach has been taken, what benefits it offers, and how it can be adopted in your class.

Genetic Analysis

Genes, Genomes, and Networks in Eukaryotes

Oxford University Press With its unique integration of genetics and molecular biology, this text probes fascinating questions that explore how our understanding of key genetic phenomena can be used to understand biological systems. Opening with a brief overview of key genetic principles, model organisms, and epigenetics, the book goes on to explore the use of gene mutations, the analysis of gene expression and activity, a discussion of the genetic structure of natural populations, and more.

Advanced Genetic Analysis

Covering topics such as the characteristics of organic compounds, nucleic acids and the identification of genetic material, 'Advanced Genetic Analysis' also looks at direct evidence for DNA as the genetic material, modes of infection of bacteriophages and identification of DNA as their genetic material.

Introduction to Genomics

Oxford University Press, USA Our genome is the blueprint to our existence: it encodes all the information we need to develop from a single cell into a hugely complicated functional organism. But it is more than a static information store: our genome is a dynamic, tightly-regulated collection of genes, which switch on and off in many combinations to give the variety of cells from which our bodies are formed. But how do we identify the genes that make up our genome? How we determine their function? And how do different genes form the regulatory networks that direct the process of life? Introduction to Genomics is a fascinating insight into what can be revealed from the study of genomes: how organisms differ or match; how different organisms evolved; how the genome is constructed and how it operates; and what our understanding of genomics means in terms of our future health and wellbeing. Covering the latest techniques that enable us to study the genome in ever-increasing detail, the book explores what the genome tells us about life at the level of the molecule, the cell, the organism, the ecosystem and the biosphere. Learning features throughout make this book the ideal teaching and learning tool: extensive end of chapter exercises and problems help the student to grasp fully the concepts being presented, while end of chapter WebLems (web-based problems) and lab assignments give the student the opportunity to engage with the subject in a hands-on manner. The field of genomics is enabling us to analyze life in more detail than ever before; Introduction to Genomics is the perfect guide to this enthralling subject. Online Resource Centre: - Figures from the book available to download, to facilitate lecture preparation - Answers to odd-numbered end of chapter exercises, and hints for solving end of chapter problems, to support self-directed learning - Library of web links, for rapid access to a wider pool of additional resources

Molecular Biology

Principles of Genome Function

Molecular Biology: Principles of Genome Function offers a fresh, distinctive approach to the teaching of molecular biology. With its focus on key principles, its emphasis on the commonalities that exist between the three kingdoms of life, and its integrated approach throughout, it is the perfect companion to any molecular biology course.

Molecular Biology

Principles of Genome Function

Oxford University Press 'Molecular Biology' offers a fresh, distinctive approach to the study of molecular biology. With its focus on key principles, its emphasis on the commonalities that exist between the three kingdoms of life, and its integrated approach throughout, it is the perfect companion to any molecular biology course.

Using the Biological Literature

A Practical Guide, Fourth Edition

CRC Press The biological sciences cover a broad array of literature types, from younger fields like molecular biology with its reliance on recent journal articles, genomic databases, and protocol manuals to classic fields such as taxonomy with its scattered literature found in monographs and journals from the past three centuries. *Using the Biological Literature: A Practical Guide, Fourth Edition* is an annotated guide to selected resources in the biological sciences, presenting a wide-ranging list of important sources. This completely revised edition contains numerous new resources and descriptions of all entries including textbooks. The guide emphasizes current materials in the English language and includes retrospective references for historical perspective and to provide access to the taxonomic literature. It covers both print and electronic resources including monographs, journals, databases, indexes and abstracting tools, websites, and associations—providing users with listings of authoritative informational resources of both classical and recently published works. With chapters devoted to each of the main fields in the basic biological sciences, this book offers a guide to the best and most up-to-date resources in biology. It is appropriate for anyone interested in searching the biological literature, from undergraduate students to faculty, researchers, and librarians. The guide includes a supplementary website dedicated to keeping URLs of electronic and web-based resources up to date, a popular feature continued from the third edition.

Evolutionary Quantitative Genetics

Springer Science & Business Media The impetus for this book arose out of my previous book, *The Evolution of Life Histories* (Roff, 1992). In that book I presented a single chapter on quantitative genetic theory. However, as the book was concerned with the evolution of life histories and traits connected to this, the presence of quantitative genetic variation was an underlying theme throughout. Much of the focus was placed on optimality theory, for it is this approach that has proven to be extremely successful in the analysis of life history variation. But quantitative genetics cannot be ignored, because there are some questions for which optimality approaches are inappropriate; for example, although optimality modeling can address the question of the maintenance of phenotypic variation, it cannot say anything about genetic variation, on which further evolution clearly depends. The present book is, thus, a natural extension of the first. I have approached the problem not from the point of view of an animal or plant breeder but from that of one interested in understanding the evolution of quantitative traits in wild populations. The subject is large with a considerable body of theory: I generally present the assumptions underlying the analysis and the results, giving the relevant references for those interested in the intervening mathematics. My interest is in what quantitative genetics tells me about evolutionary processes; therefore, I have concentrated on areas of research most relevant to field studies.

Molecular Biology

Principles of Genome Function

Oxford University Press, USA A fresh, distinctive approach to the teaching of molecular biology. With its focus on key principles, its emphasis on the commonalities that exist between the three kingdoms of life, and its integrated coverage of experimental methods and approaches, *Molecular Biology* is the perfect companion to any molecular biology course.

Genomics

A Very Short Introduction

Oxford University Press In the years since the Human Genome Project, genomics has grown into a big and rapidly developing field driven by bioinformatics technology. The implications for our health and privacy, and our understanding of ecological systems and evolution are profound. This book provides an account of this exciting new science, its impact and its potential.

Mutation, Randomness, and Evolution

Oxford University Press The author draws on a detailed knowledge of mutational mechanisms to argue that the randomness doctrine is best understood, not as a fact-based conclusion, but as the premise of a neo-Darwinian research program focused on selection.

Genetic Analysis

Genes, Genomes, and Networks in Eukaryotes

Oxford University Press, USA How do we know what role a particular gene has? How do some genes control the expression of others? How do genes interact to form gene networks? With its unique integration of genetics and molecular biology, *Genetic Analysis* probes fascinating questions such as these, detailing how our understanding of key genetic phenomena can be used to understand biological systems. Opening with a brief overview of key genetic principles, model organisms, and epigenetics, the book goes on to explore the use of gene mutations and the analysis of gene expression and activity. A discussion of the interactions of genes during suppression, synthetic enhancement, and epistasis follows, which is then expanded into a consideration of genetic networks and personal genomics. Drawing on the latest experimental tools, including CRISPR-Cas9 genome editing, microarrays, RNAi screens, and bioinformatics approaches, *Genetic Analysis* provides a state-of-the-art review of the field, but in a truly student-friendly manner. It uses extended case studies and text boxes to augment the narrative, taking the reader right to the forefront of contemporary research, without losing its clarity of explanation and insight. We are in an age where, despite knowing so much about biological systems, we are just beginning to realise how much more there is still to understand. *Genetic Analysis* is the ideal guide to how we can use the awesome power of molecular genetics to further our understanding.

A Primer of Genome Science

Sinauer Associates Incorporated Bioinformatic principles and experimental strategies are explained side-by-side with the experimental methods used in this field, to establish a framework that allows readers to explore topics and literature at their own pace.

Evolutionary Genetics

Concepts, Analysis, and Practice

Oxford University Press, USA Evolutionary genetics is the study of how genetic variation leads to evolutionary change. With the recent explosion in the availability of whole genome sequence data, vast quantities of genetic data are being generated at an ever-increasing pace with the result that programming has become an essential tool for researchers. Most importantly, a thorough understanding of evolutionary principles is essential for making sense of this genetic data. This up-to-date textbook covers all the major components of modern evolutionary genetics, carefully explaining fundamental processes such as mutation, natural selection, genetic drift, and speciation, together with their consequences. The book also draws on a rich literature of exciting and inspiring examples to demonstrate the diversity of evolutionary research, including an emphasis on how evolution and selection has shaped our own species. Furthermore, at the end of each chapter, study questions are provided to motivate the reader to think and reflect on the concepts introduced. Practical experience is essential when it comes to developing an understanding of how to use genetic and genomic data to analyze and address interesting questions in the life sciences and how to interpret results in meaningful ways. In addition to the main text, a series of online tutorials using the R language serves as an introduction to programming, statistics, and the analysis of evolutionary genetic data. The R environment stands out as an ideal all-purpose, open source platform to handle and analyze such data. The book and its online materials take full advantage of the authors' own experience in working in a post-genomic revolution world, and introduce readers to the plethora of molecular and analytical methods that have only recently become available.

A Primer of Human Genetics

Sinauer Associates Incorporated *A Primer of Human Genetics* is an introductory textbook designed to give students the foundation they need to understand and appreciate the extraordinary shifts in human genetics that have accompanied the arrival of genomics. The book lays out the key concepts of human evolution, quantitative genetics, and personalized medicine before describing the tools that are missing from most contemporary textbooks: genome-wide association studies, whole-genome resequencing, gene expression and epigenome profiling, and integrative genomics. The final section provides an up-to-date survey of specific findings in six major domains of human disease: immunological, metabolic, cardiovascular, cancer, neuropsychological, and aging disorders. After reading this textbook, not only will students be better equipped to read current literature, they will gain a sense of the impact that the revolution in genomics has had for our understanding of the human condition, as well as of the major trends in human genetics research. Students are assumed to have a core understanding of genetics such as would be obtained in a general genetics class. Each chapter is approximately 20 pages long, and organized under up to ten sub-headings, most of which incorporate an illustrative figure. Chapter summary points recap the key messages, and references point students to key reviews and contemporary highlights. Several of the chapters contain a single box, which provides extra material on topics such as "Consent and Responsible Conduct of Research" and "Methylation Analysis in Biology."--Publisher description.

A Primer of Ecological Genetics

Sinauer Associates Incorporated This book covers basic concepts in population and quantitative genetics, including measuring selection on phenotypic traits. The emphasis is on material applicable to field studies of evolution focusing on ecologically important traits. Topics addressed are critical for training students in ecology, evolution, conservation biology, agriculture, forestry, and wildlife management. Many texts in this field are too complex and mathematical to allow the average beginning student to readily grasp the key concepts. *A Primer of Ecological Genetics*, in contrast, employs mathematics and statistics-fully explained, but at a less advanced level-as tools to improve understanding of biological principles. The main goal is to enable students to understand the concepts well enough that they can gain entry into the primary literature. Integration of the different chapters of the book shows students how diverse concepts relate to each other.

Developmental Timing

Academic Press This new volume of *Current Topics in Developmental Biology* covers developmental timing, with contributions from an international board of authors. The chapters provide a comprehensive set of reviews covering such topics as the timing of developmental programs in *Drosophila*, temporal patterning of neural progenitors, and environmental modulation of developmental timing. Covers the area of developmental timing International board of authors Provides a comprehensive set of reviews covering such topics as the timing of developmental programs in *Drosophila*, temporal patterning of neural progenitors, and environmental modulation of developmental timing

Nematodes as Model Organisms

Cab International "Nematodes, especially *Caenorhabditis elegans* have been used as a model for research in molecular biology since the 1960's. This is a much-needed update on research on fundamental processes in areas such as genetics, developmental biology, nutrition, toxicology, ecology, pharmacology and medicine"--

C. Elegans II

Firefly Books Defines the current status of research in the genetics, anatomy, and development of the nematode *C. elegans*, providing a detailed molecular explanation of how development is regulated and how the nervous system specifies varied aspects of behavior. Contains sections on the genome, development, neural networks and behavior, and life history and evolution. Appendices offer genetic nomenclature, a list of laboratory strain and allele designations, skeleton genetic maps, a list of characterized genes, a table of neurotransmitter assignments for specific neurons, and information on codon usage. Includes bandw photos. For researchers in worm studies, as well as the wider community of researchers in cell and molecular biology. Annotation copyrighted by Book News, Inc., Portland, OR

The Nematode *Caenorhabditis Elegans*

Cold Spring Harbor Laboratory Press

Caenorhabditis Elegans: Modern Biological Analysis of an Organism

Academic Press The first of its kind, this laboratory handbook emphasizes diverse methods and technologies needed to investigate *C. elegans*, both as an integrated organism and as a model system for research inquiries in cell, developmental, and molecular biology, as well as in genetics and pharmacology. Four primary sections--Genetic and Culture Methods, Neurobiology, Cell and Molecular Biology, and Genomics and Informatics--reflect the cross-disciplinary nature of *C. elegans* research. Because *C. elegans* is a simple and malleable organism with a small genome and few cell types, it provides an elegant demonstration of functions fundamental to multicellular organisms. The discipline has greatly expanded as researchers continue to find this small soil nematode to be the model of choice for studying specific pathways, stages of development, and cell types. By directing its audience not just to tried-and-true recipes for research, but also to databases and other innovative sources of information, this comprehensive collection is intended to guide investigators of *C. elegans* for years to come. First single-source book detailing explanations of current and classic *C. elegans* methodologies Diversity and scope of techniques covered expected to be useful to the broadening community of *C. elegans* researchers for years to come Techniques range from reverse genetics and mutagenesis, to laser ablation and electrophysiology, to in situ hybridization and DNA sequencing methods Appendices include resource information important to the *C. elegans* community, including the *C. elegans* Genetics Center and Internet resources like the Worm Community System and ACeDB Illustrated with more than 100 tables and figures

Genetics in Medicine

Written primarily for students embarking on an undergraduate bioscience degree, this primer will review the essential biological concepts that underpin any programme of more advanced study and give early-stage undergraduates the opportunity to review topics about which they may feel under-prepared or less confident. Genetic medicine has entered an era of rapid expansion. It is no longer just relevant to families affected by rare congenital disorders, but has the potential to affect the diagnosis and treatment of most common complex diseases. The successful application of new genetic science in the decades ahead will depend on the next generation of undergraduates or university applicants, who are now planning their careers as Biologists and Clinicians. This primer explores core concepts about heredity and genome analysis, illustrates current clinical practice with case-histories, and discusses the potentials and pitfalls of personalised medicine.

Diet and Health

Implications for Reducing Chronic Disease Risk

National Academies Press Diet and Health examines the many complex issues concerning diet and its role in increasing or decreasing the risk of chronic disease. It proposes dietary recommendations for reducing the risk of the major diseases and causes of death today: atherosclerotic cardiovascular diseases (including heart attack and stroke), cancer, high blood pressure, obesity, osteoporosis, diabetes mellitus, liver disease, and dental caries.

Mycotoxin Reduction in Grain Chains

John Wiley & Sons Cereal grain safety from farm to table Mycotoxin Reduction in Grain Chains examines the ways in which food producers, inspectors, and processors can keep our food supply safe. Providing guidance on identification, eradication, and prevention at each stop on the "grain chain, this book is an invaluable resource for anyone who works with cereal grains. Discussions include breeding and crop management, chemical control, contamination prediction, and more for maize, wheat, sorghum, rice, and other major grains. Relevant and practical in the field, the lab, and on the production floor, this book features critical guidance for every point from farm to table.

Genetics of Hypertension

Elsevier Health Sciences Classic and modern tools of genetics have been applied to hypertension research for some 20 years. This volume in the Handbook of Hypertension series aims to go beyond a simple summary of discoveries and provides a critical commentary on many controversial issues. It will be particularly useful for clinician scientists at all stages of their careers, graduate students and post-doctoral scientists as well as all those interested in cardiovascular medicine and research throughout the entire spectrum from bench to bedside. As in every relatively young area of research, the initial excitement over the early positive observations has not always been confirmed by subsequent larger studies with greater statistical power. Issues related to current recommendations on design of studies and their analysis are therefore included. Pharmacogenetics and pharmacogenomics have been the subjects of many debates in recent years and are of particular importance in hypertension as life-long treatments, frequently with multiple drugs are given to millions of people world-wide. A critical appraisal of this controversial topic is provided. Several chapters on experimental genetics of hypertension with a special focus on physiological genomics are also included.

Chromosomes

Organization and Function

John Wiley & Sons Integrating classical knowledge of chromosome organisation with recent molecular and functional findings, this book presents an up-to-date view of chromosome organisation and function for advanced undergraduate students studying genetics. The organisation and behaviour of chromosomes is central to genetics and the equal segregation of genes and chromosomes into daughter cells at cell division is vital. This text aims to provide a clear and straightforward explanation of these complex processes. Following a brief historical introduction, the text covers the topics of cell cycle dynamics and DNA replication; mitosis and meiosis; the organisation of DNA into chromatin; the arrangement of chromosomes in interphase; euchromatin and heterochromatin; nucleolus organisers; centromeres and telomeres; lampbrush and polytene chromosomes; chromosomes and evolution; chromosomes and disease, and artificial chromosomes. Topics are illustrated with examples from a wide variety of organisms, including fungi, plants, invertebrates and vertebrates. This book will be a valuable resource for plant, animal and human geneticists and cell biologists. Originally a zoologist, Adrian Sumner has spent over 25 years studying human and other mammalian chromosomes with the Medical Research Council (UK). One of the pioneers of chromosome banding, he has used electron microscopy and immunofluorescence to study chromosome organisation and function, and latterly has studied factors involved in chromosome separation at mitosis. Adrian is an Associate Editor of the journal Chromosome Research, acts as a consultant biologist and is also Chair of the Committee of the International Chromosome

Conferences. The most up-to-date overview of chromosomes in all their forms. Introduces cutting-edge topics such as artificial chromosomes and studies of telomere biology. Describes the methods used to study chromosomes. The perfect complement to Turner.

The LINC Complex

Methods and Protocols

Bio-Inspired Information and Communications Technologies

13th EAI International Conference, BICT 2021, Virtual Event, September 1-2, 2021, Proceedings

Springer Nature

Cytochrome P450 2E1: Its Role in Disease and Drug Metabolism

Springer Science & Business Media The book deals with various clinical aspects of cytochrome P450 2E1 (CYP2E1) which is a potent source for oxidative stress. Oxidative stress is critical for pathogenesis of diseases and CYP2E1 is a major contributor for oxidative stress. Several clinical disorders are associated with changes in regulation of CYP2E1 and the consequent abnormalities which include alcoholic liver disease, alcoholic pancreatitis, carcinogenesis, non-alcoholic fatty liver disease, non-alcoholic steatohepatitis, obesity, hepatitis C virus infection, reproductive organ toxicity, hepatocellular and cholestatic liver cirrhosis, inhibition of bone repair, cross-tolerance in smokers and people treated with nicotine, disorders of central nervous system, changes in metabolism of protoxicants in the circulatory system and susceptibility to human papillomavirus infection. Hence, CYP2E1 emerges as a new and potent player in aggravating injury and furthering disease complications.

Introduction to Bioinformatics

The ideal text for biology students encountering bioinformatics for the first time, Introduction to Bioinformatics describes how recent technological advances in the field can be used as a powerful set of tools for receiving and analyzing biological data.

The Evolution of Sex Determination

Oxford University Press, USA temperature) or social variables (e.g.

A Primer of Molecular Population Genetics

Oxford University Press, USA What are the genomic signatures of adaptations in DNA? How often does natural selection dictate changes to DNA? How does the ebb and flow in the abundance of individuals over time get marked onto chromosomes to record genetic history? Molecular population genetics seeks to answer such questions by explaining genetic variation and molecular evolution from micro-evolutionary principles. It provides a way to learn about how evolution works and how it shapes species by incorporating molecular details of DNA as the heritable material. It enables us to understand the logic of how mutations originate, change in abundance in populations, and become fixed as DNA sequence divergence between species. With the revolutionary advances in genomic data acquisition, understanding molecular population genetics is now a fundamental requirement for today's life scientists. These concepts apply in analysis of personal genomics, genome-wide association studies, landscape and conservation genetics, forensics, molecular anthropology, and selection scans. This book introduces, in an accessible way, the bare essentials of the theory and practice of molecular population genetics.

Current Protocols Essential Laboratory Techniques

Current Protocols The latest title from the acclaimed Current Protocols series, Current Protocols Essential Laboratory Techniques, 2e provides the new researcher with the skills and understanding of the fundamental laboratory procedures necessary to run successful experiments, solve problems, and become a productive member of the modern life science laboratory. From covering the basic skills such as measurement, preparation of reagents and use of basic instrumentation to the more advanced techniques such as blotting, chromatography and real-time PCR, this book will

serve as a practical reference manual for any life science researcher. Written by a combination of distinguished investigators and outstanding faculty, *Current Protocols Essential Laboratory Techniques, 2e* is the cornerstone on which the beginning scientist can develop the skills for a successful research career.

Germline Development

John Wiley & Sons Connects classical cellular descriptive studies with more recent work on the molecular and genetic aspects regarding germline development. Prominent scientists discuss research on a range of organisms including insects, worms, birds, fish, amphibia, mammals and green algae. Specification of germ cells, their migration to the gonads and subsequent interactions with the soma and evolutionary factors of their segregation are among the topics covered.

The ESC Textbook of Cardiovascular Medicine

Designing Foods

Animal Product Options in the Marketplace

National Academies Press This lively book examines recent trends in animal product consumption and diet; reviews industry efforts, policies, and programs aimed at improving the nutritional attributes of animal products; and offers suggestions for further research. In addition, the volume reviews dietary and health recommendations from major health organizations and notes specific target levels for nutrients.

Crumbling Genome

The Impact of Deleterious Mutations on Humans

John Wiley & Sons A thought-provoking exploration of deleterious mutations in the human genome and their effects on human health and wellbeing Despite all of the elaborate mechanisms that a cell employs to handle its DNA with the utmost care, a newborn human carries about 100 new mutations, originated in their parents, about 10 of which are deleterious. A mutation replacing just one of the more than three billion nucleotides in the human genome may lead to synthesis of a dysfunctional protein, and this can be inconsistent with life or cause a tragic disease. Several percent of even young people suffer from diseases that are caused, exclusively or primarily, by pre-existing and new mutations in their genomes, including both a wide variety of genetically simple Mendelian diseases and diverse complex diseases such as birth anomalies, diabetes, and schizophrenia. Milder, but still substantial, negative effects of mutations are even more pervasive. As of now, we possess no means of reducing the rate at which mutations appear spontaneously. However, the recent flood of genomic data made possible by next-generation methods of DNA sequencing, enabled scientists to explore the impacts of deleterious mutations on humans with previously unattainable precision and begin to develop approaches to managing them. Written by a leading researcher in the field of evolutionary genetics, *Crumbling Genome* reviews the current state of knowledge about deleterious mutations and their effects on humans for those in the biological sciences and medicine, as well as for readers with only a general scientific literacy and an interest in human genetics. Provides an extensive introduction to the fundamentals of evolutionary genetics with an emphasis on mutation and selection Discusses the effects of pre-existing and new mutations on human genotypes and phenotypes Provides a comprehensive review of the current state of knowledge in the field and considers crucial unsolved problems Explores key ethical, scientific, and social issues likely to become relevant in the near future as the modification of human germline genotypes becomes technically feasible *Crumbling Genome* is must-reading for students and professionals in human genetics, genomics, bioinformatics, evolutionary biology, and biological anthropology. It is certain to have great appeal among all those with an interest in the links between genetics and evolution and how they are likely to influence the future of human health, medicine, and society.