An anthropologist visits the frontiers of genetics, medicine, and technology to ask: Whose values are guiding gene editing experiments? And what does this new era of scientific inquiry mean for the future of the human species? "That rare kind of scholarship that is also a page-turner." —Britt Wray, author of Rise of the Necrofauna At a conference in Hong Kong in November 2018, Dr. He Jiankui announced that he had created the first genetically modified babies—twin girls named Lulu and Nana—sending shockwaves around the world. A year later, a Chinese court sentenced Dr. He to three years in prison for "illegal medical practice." As scientists elsewhere start to catch up with China’s vast genetic research program, gene editing is fueling an innovation economy that threatens to widen racial and economic inequality. Fundamental questions about science, health, and social justice are at stake: Who gets access to gene editing technologies? As countries loosen regulations around the globe, from the U.S. to Indonesia, can we shape research agendas to promote an ethical and fair society? Eben Kirksey takes us on a groundbreaking journey to meet the key scientists, lobbyists, and entrepreneurs who are bringing cutting-edge genetic engineering tools like CRISPR—created by Nobel Prize-winning biochemists Jennifer Doudna and Emmanuelle Charpentier—to your local clinic. He also ventures beyond the scientific echo chamber, talking to disabled scholars, doctors, hackers, chronically-ill patients, and activists who have alternative visions of a genetically modified future for humanity. The Mutant Project empowers
us to ask the right questions, uncover the truth, and navigate this brave new world. With Genetics: A Conceptual Approach, Ben Pierce brings a master teacher’s experiences to the introductory genetics textbook, clarifying this complex subject by focusing on the big picture of genetics concepts and how those concepts connect to one another. Approaches the subject from a biological and evolutionary perspective rather than just identification.

Genomes 4 has been completely revised and updated. It is a thoroughly modern textbook about genomes and how they are investigated. As with Genomes 3, techniques come first, then genome anatomies, followed by genome function, and finally genome evolution. The genomes of all types of organism are covered: viruses, bacteria, fungi, plants, and animals including humans and other hominids. Genome sequencing and assembly methods have been thoroughly revised including a survey of four genome projects: human, Neanderthal, giant panda, and barley. Coverage of genome annotation emphasizes genome-wide RNA mapping, with CRISPR-Cas 9 and GWAS methods of determining gene function covered. The knowledge gained from these techniques forms the basis of the three chapters that describe the three main types of genomes: eukaryotic, prokaryotic (including eukaryotic organelles), and viral (including mobile genetic elements). Coverage of genome expression and replication is truly genomic, concentrating on the genome-wide implications of DNA packaging, epigenome modifications, DNA-binding proteins, non-coding RNAs, regulatory genome sequences, and protein-protein interactions. Also included are applications of transcriptome analysis, metabolomics, and systems biology. The final chapter is on genome evolution, focusing on the evolution of the epigenome, using genomics to study human evolution, and using population
genomics to advance plant breeding. Established methods of molecular biology are included if they are still relevant today and there is always an explanation as to why the method is still important. Each chapter has a set of short-answer questions, in-depth problems, and annotated further reading. There is also an extensive glossary. Genomes 4 is the ideal text for upper level courses focused on genomes and genomics.

The latest edition of this well-established, accessible introduction to neurophysiology succeeds in integrating the disciplines of neurology and neuroscience with an emphasis on principles and functional concepts. In Neurophysiology: A Conceptual Approach, Fifth Edition, the authors deliver a refreshing alternative to "learning by rote," employing a

Gene regulation is an essential process in the development and maintenance of a healthy body, and as such, is a central focus in both basic science and medical research. Gene Regulation, Fifth Edition provides the student and researcher with a clear, up-to-date description of gene regulation in eukaryotes, distilling the vast and complex primary literature into a concise overview.

Genetics: A Conceptual Approach

Ben Pierce is recognized for his ability to make the complex subject of genetics as accessible as possible, giving students the big picture. By helping students easily identify the key concepts in genetics and by helping them make connections among concepts, Pierce allows students to learn the material with greater ease. W.H. Freeman is proud to introduce the Fourth Edition of Pierce’s Genetics: A Conceptual Approach. Visit the preview site at www.whfreeman.com/pierce4epreview

Derived from his popular and acclaimed Genetics: A Conceptual Approach, Ben Pierce’s
streamlined text covers basic transmission, molecular, and population genetics in just 18 chapters, helping students uncover major concepts of genetics and make connections among those concepts as a way of gaining a richer understanding of the essentials of genetics. With the new edition, Ben Pierce again focuses on the most pervasive problems for students taking genetics—understanding how genetics concepts connect to each other and developing solid problem solving skills. And with this edition, Genetics Essentials is available as a fully integrated text/media resource with SaplingPlus, an online solution that combines an e-book of the text, Pierce’s powerful multimedia resources, and Sapling’s robust genetics problem library.

"Compatible with standard taper miniscale, 14/10 standard taper microscale, Williamson microscale. Supports guided inquiry"--Cover.

The Problems Book helps students appreciate the ways in which experiments and simple calculations can lead to an understanding of how cells work by introducing the experimental foundation of cell and molecular biology. Each chapter reviews key terms, tests for understanding basic concepts, and poses research-based problems. The Problems Book has be

With its modular organization, consistent chapter structure, and contemporary perspective, this groundbreaking survey is ideal for courses on learning and memory, and is easily adaptable to courses that focus on either learning or memory. Instructors can assign the chapters they want from four distinctive modules (introduction, learning, memory, and integrative topics), with each chapter addressing behavioral processes, then the underlying neuroscience, then relevant clinical perspectives. The book is further distinguished by its full-color presentation and
coverage that includes comparisons between studies of human and nonhuman brains. The new edition offers enhanced pedagogy and more coverage of animal learning.

Effective science teaching requires creativity, imagination, and innovation. In light of concerns about American science literacy, scientists and educators have struggled to teach this discipline more effectively. Science Teaching Reconsidered provides undergraduate science educators with a path to understanding students, accommodating their individual differences, and helping them grasp the methods—and the wonder—of science. What impact does teaching style have? How do I plan a course curriculum? How do I make lectures, classes, and laboratories more effective? How can I tell what students are thinking? Why don't they understand? This handbook provides productive approaches to these and other questions. Written by scientists who are also educators, the handbook offers suggestions for having a greater impact in the classroom and provides resources for further research.

The sixth edition provides an authoritative and comprehensive vision of molecular biology today. It presents developments in cell birth, lineage and death, expanded coverage of signaling systems and of metabolism and movement of lipids.

Now in a revised and expanded fourth edition, this definitive reference and text has more than 50% new material, reflecting a decade of theoretical and empirical advances. Prominent researchers describe major theories and review cutting-edge findings. The volume explores how personality emerges from and interacts
with biological, developmental, cognitive, affective, and social processes, and the implications for well-being and health. Innovative research programs and methods are presented throughout. The concluding section showcases emerging issues and new directions in the field. New to This Edition *Expanded coverage of personality development, with chapters on the overall life course, middle childhood, adolescence, and early adulthood. *Three new chapters on affective processes, plus chapters on neurobiology, achievement motivation, cognitive approaches, narcissism, and other new topics. *Section on cutting-edge issues: personality interventions, personality manifestations in everyday life, geographical variation in personality, self-knowledge, and the links between personality and economics. *Added breadth and accessibility--42 more concise chapters, compared to 32 in the prior edition. 

Principles of Animal Behavior has long been considered the most current and engaging introduction to animal behavior. The Third Edition is now also the most comprehensive and balanced in its approach to the theoretical framework behind how biologists study behavior. Written for introductory courses in engineering design, this text illustrates conceptual design methods and project management tools through descriptions, examples, and case studies.
Parasitology: A Conceptual Approach is a new textbook for upper-level undergraduate and graduate students which focuses on concepts and principles without neglecting important aspects of a traditional, taxonomically based approach to parasitology. Concentrating on concepts enables readers to gain a broader perspective that will increase their ability to think critically about various parasitic associations. The interfaces between the study of parasitism and prominent biological disciplines such as biodiversity, immunology, ecology, evolution, conservation biology, and disease control are highlighted. End-of-chapter questions are provided, as is an Instructor Manual. Information on individual parasites is expertly summarized in a concise appendix called the Rogues' Gallery. This appendix is organized taxonomically and includes details on taxonomy, life cycle, associated pathology, treatment, and control. Species included in the Rogues' Gallery are highlighted in red throughout the main text.

This version of Ben Pierce's Genetics: A Conceptual Approach, Fourth Edition contains selected chapters (chapters 1-9, 18, and 24-26) from the larger book to focus specifically on the fundamental concepts of transmission and population genetics. Ben Pierce is known for his ability to make the complex subject of genetics accessible to students, teaching them to see the big picture amid the details of the subject. By aiding students in identifying key concepts in genetics
and showing them how concepts connect to one another, Pierce helps students learn genetics with greater ease.
The Handbook of Psychophysiology has been the authoritative resource for more than a quarter of a century. Since the third edition was published a decade ago, the field of psychophysiological science has seen significant advances, both in traditional measures such as electroencephalography, event-related brain potentials, and cardiovascular assessments, and in novel approaches and methods in behavioural epigenetics, neuroimaging, psychoneuroimmunology, psychoneuroendocrinology, neuropsychology, behavioural genetics, connectivity analyses, and non-contact sensors. At the same time, a thoroughgoing interdisciplinary focus has emerged as essential to scientific progress. Emphasizing the need for multiple measures, careful experimental design, and logical inference, the fourth edition of the Handbook provides updated and expanded coverage of approaches, methods, and analyses in the field. With state-of-the-art reviews of research in topical areas such as stress, emotion, development, language, psychopathology, and behavioural medicine, the Handbook remains the essential reference for students and scientists in the behavioural, cognitive, and biological sciences.
This manual contains complete answers and worked-out solutions to all questions and
problems that appear in the textbook. Cytogenetics is the study of chromosome morphology, structure, pathology, function, and behavior. The field has evolved to embrace molecular cytogenetic changes, now termed cytogenomics. Cytogeneticists utilize an assortment of procedures to investigate the full complement of chromosomes and/or a targeted region within a specific chromosome in metaphase or interphase. Tools include routine analysis of G-banded chromosomes, specialized stains that address specific chromosomal structures, and molecular probes, such as fluorescence in situ hybridization (FISH) and chromosome microarray analysis, which employ a variety of methods to highlight a region as small as a single, specific genetic sequence under investigation. The AGT Cytogenetics Laboratory Manual, Fourth Edition offers a comprehensive description of the diagnostic tests offered by the clinical laboratory and explains the science behind them. One of the most valuable assets is its rich compilation of laboratory-tested protocols currently being used in leading laboratories, along with practical advice for nearly every area of interest to cytogeneticists. In addition to covering essential topics that have been the backbone of cytogenetics for over 60 years, such as the basic components of a cell, use of a microscope, human tissue processing for cytogenetic analysis (prenatal, constitutional, and neoplastic), laboratory safety, and the mechanisms behind chromosome rearrangement and aneuploidy, this edition introduces new and expanded chapters by experts in the field. Some of these new
topics include a unique collection of chromosome heteromorphisms; clinical examples of genomic imprinting; an example-driven overview of chromosomal microarray; mathematics specifically geared for the cytogeneticist; usage of ISCN’s cytogenetic language to describe chromosome changes; tips for laboratory management; examples of laboratory information systems; a collection of internet and library resources; and a special chapter on animal chromosomes for the research and zoo cytogeneticist. The range of topics is thus broad yet comprehensive, offering the student a resource that teaches the procedures performed in the cytogenetics laboratory environment, and the laboratory professional with a peer-reviewed reference that explores the basis of each of these procedures. This makes it a useful resource for researchers, clinicians, and lab professionals, as well as students in a university or medical school setting. This new brief version of Benjamin Pierce’s Genetics: A Conceptual Approach, Second Edition, responds to a growing trend of focusing the introductory course on transmission and population genetics and covering molecular genetics separately. The book is comprised of following chapters an case studies from Pierce's complete text: 1. Introduction to Genetics 2. Chromosomes and Cellular Reproduction 3. Basic Principles of Heredity 4. Sex Determination and Sex-Linked Characteristics 5. Extensions and Modifications of Basic Principles 6. Pedigree Analysis and Applications INTEGRATIVE CASE STUDY Phenylketonuria: Part I 7. Linkage, Recombination, and Eukaryotic Gene Mapping 8. Bacterial and Viral Genetic Systems 9. Chromosome Variation
INTEGRATIVE CASE STUDY Phenylketonuria: Part II

22. Quantitative Genetics
23. Population Genetics and Molecular Evolution

INTEGRATIVE CASE STUDY Phenylketonuria: Part III

The fifth edition of the casebook, which is suitable either for a one- or two-semester course, strives to make constitutional law easily teachable and readily accessible for students. The authors have selected the cases very carefully and provided extensive excerpts of the opinions so that students get a good sense of the Court's reasoning. Text boxes call the students' attention to important aspects of each opinion, and the book is filled with introductions, points for discussion, hypotheticals, and executive summaries. The authors present a diversity of views on every subject, and, reflecting some of their own disagreements, the authors have written point-counterpoint discussions on many disputed questions.

In response to many requests, the Third Edition of A Primer of Population Genetics has been dramatically shortened and streamlined for greater accessibility. Designed primarily for undergraduates, it will also serve for graduate students and professionals in biology and other sciences who desire a concise but comprehensive overview of the field with a primary focus on the integration of experimental results with theory. The abundance of experimental data generated by the use of molecular methods to study genetic polymorphisms sparked a transformation in the field of population genetics. Present in virtually all organisms, molecular polymorphisms allow populations to be
studied without regard to species or habitat, and without the need for controlled crosses, mutant genes, or for any prior genetic studies. Thus a familiarity with population genetics has become essential for any biologist whose work is at the population level. These fields include evolution, ecology, systematics, plant breeding, animal breeding, conservation and wildlife management, human genetics, and anthropology. Population genetics seeks to understand the causes of genetic differences within and among species, and molecular biology provides a rich repertoire of techniques for identifying these differences.

This book is designed for a mathematics for elementary school teachers course where instructors choose to focus on and/or take an activities approach to learning. It provides inductive activities for prospective elementary school teachers and incorporates the use of physical models, manipulatives, and visual images to develop concepts and encourage higher-level thinking. This text contains an activity set that corresponds to each section of the companion text, Mathematics for Elementary Teachers: A Conceptual Approach which is also by Bennett/Nelson. The Activities Approach text can be used independently or along with its companion volume. The authors are pleased to welcome Laurie Burton, PhD, Western Oregon University to this edition of Mathematics for Elementary Teachers: An Activity Approach.

“... an excellent book... achieves all of its goals with style, clarity and completeness... You can see the power and possibilities of molecular genetics as you read...” –Human
Genetics "This volume hits an outstanding balance among readability, coverage, and detail." –Biochemistry and Molecular Biology Education Rapid advances in a collection of techniques referred to as gene technology, genetic engineering, recombinant DNA technology and gene cloning have pushed molecular biology to the forefront of the biological sciences. This new edition of a concise, well-written textbook introduces key techniques and concepts involved in cloning genes and in studying their expression and variation. The book opens with a brief review of the basic concepts of molecular biology, before moving on to describe the key molecular methods and how they fit together. This ranges from the cloning and study of individual genes to the sequencing of whole genomes, and the analysis of genome-wide information. Finally, the book moves on to consider some of the applications of these techniques, in biotechnology, medicine and agriculture, as well as in research that is causing the current explosion of knowledge across the biological sciences. From Genes to Genomes: Concepts and Applications of DNA Technology, Second Edition includes full two-colour design throughout. Specific changes for the new edition include: Strengthening of gene to genome theme Updating and reinforcing of material on proteomics, gene therapy and stem cells More eukaryotic/mammalian examples and less focus on bacteria This textbook is must-have for all undergraduates studying intermediate molecular genetics within the biological and biomedical sciences. It is also of interest for researchers and all those needing to update their knowledge of this rapidly moving field.
Concepts of Genetics is a one semester introductory genetics text that explains genetics concepts in a concise, engaging and up-to-date manner. Rob Brooker, author of market leading texts in Genetics and Intro Biology for majors, brings his clear and accessible writing style to this briefer genetics text. He employs the use of experimentation and stresses the fundamentals of the Scientific Method in presenting genetics concepts, then further engages the reader through the use of formative assessment to assist the student in understanding the core genetic principles. The introduction of Learning Outcomes throughout the chapter in the 2nd edition helps the student focus on the key concepts presented in the chapter. Concepts of Genetics, 2e also stresses developing problem-solving skills with the new feature "Genetic TIPS" that breaks a problem down into conceptual parts (Topic, Information, Problem-Solving Strategy) to help students work through the answer. The 2nd edition will be more focused on core concepts with the narrowing of book content by eliminating specialty chapters that many courses do not have time to cover in detail (the full chapters on Developmental Genetics and Evolutionary Genetics--these general topics are discussed elsewhere, but not in the amount of detail in the first edition). The author has added new information regarding epigenetics and material on personalized medicine. The integration of the genetics text and the power of digital world are now complete with McGraw-Hill's ConnectPlus including LearnSmart. Users who purchase Connect Plus receive access to SmartBook and to the full online ebook version of the textbook.
This successful text on carrying out research in 'real world' situations has been thoroughly revised and updated in order to make it as useful as possible to teachers and students from a range of behavioral and social science disciplines. Includes new examples from applied psychology, applied social science, health studies, social work and education. Provides more coverage of qualitative methods. Pedagogical material has been updated to include a glossary and detailed cross-referencing across chapters. Bases the quantitative analysis section around version 10 of SPSS and the section on qualitative analysis around the NUD*IST software. Situates material more clearly within theoretical conceptualizations of the nature of social science research, pointing to the advantages of a critical realist approach. For sample chapters please visit www.blackwellpublishing.com/robson

Since the last edition of this definitive textbook was published in 2013, much has happened in the field of animal behavior. In this fourth edition, Lee Alan Dugatkin draws on cutting-edge new work not only to update and expand on the studies presented, but also to reinforce the previous editions’ focus on ultimate and proximate causation, as well as the book’s unique emphasis on natural selection, learning, and cultural transmission. The result is a state-of-the-art textbook on animal behavior that explains underlying concepts in a way that is both scientifically rigorous and accessible to students. Each chapter in the book provides a sound theoretical and conceptual basis upon which the empirical studies rest. A completely new feature in this edition are the
Cognitive Connection boxes in Chapters 2–17, designed to dig deep into the importance of the cognitive underpinnings to many types of behaviors. Each box focuses on a specific issue related to cognition and the particular topic covered in that chapter. As Principles of Animal Behavior makes clear, the tapestry of animal behavior is created from weaving all of these components into a beautiful whole. With Dugatkin’s exquisitely illustrated, comprehensive, and up-to-date fourth edition, we are able to admire that beauty anew.

This concise introduction addresses the theories behind population genetics and relevant empirical evidence, genetic drift, natural selection, nonrandom mating, quantitative genetics, and the evolutionary advantage of sex.

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