

Mendel And Meiosis

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Making Sense of Genes CSHL Press
 The Causes and Consequences of Chromosomal Aberrations explores one of the most dramatic examples of genomic instability—chromosomal aberrations. It describes some of the more recent techniques used to map genes within the human genome, study chromosomal aberrations at the cellular level, and define the organization of the interphase nucleus. General overviews are provided to build a conceptual framework for understanding the generality and specificity of chromosomal aberrations. The Causes and Consequences of Chromosomal Aberrations also explores the role of recombinases and topoisomerases in the

development of chromosomal aberrations. It contains studies of chromosomal aberrations, which offer separate instructive treatises on specific malignancies. The Causes and Consequences of Chromosomal Aberrations is useful to medical and graduate students, physicians, molecular biologists, and cytogeneticists. It will benefit anyone interested in the concepts, contributions, and development in the field of molecular cytogenetics. *The Fundamentals of Modern Statistical Genetics* Oxford University Press on Demand
 Black & white print. Concepts of Biology is designed for the typical introductory biology course for nonmajors, covering standard scope and sequence requirements. The text includes interesting applications and conveys the major themes of biology, with content that

is meaningful and easy to understand. The book is designed to demonstrate biology concepts and to promote scientific literacy.

Mendel's Principles of Heredity John Wiley & Sons

In evolution, most genes survive and spread within populations because they increase the ability of their hosts (or their close relatives) to survive and reproduce. But some genes spread in spite of being harmful to the host organism—by distorting their own transmission to the next generation, or by changing how the host behaves toward relatives. As a consequence, different genes in a single organism can have diametrically opposed interests and adaptations. Covering all species from yeast to humans, *Genes in Conflict* is the first book to tell the story of selfish genetic elements, those continually appearing stretches of DNA that act

narrowly to advance their own replication at the expense of the larger organism. As Austin Burt and Robert Trivers show, these selfish genes are a universal feature of life with pervasive effects, including numerous counter-adaptations. Their spread has created a whole world of socio-genetic interactions within individuals, usually completely hidden from sight. *Genes in Conflict* introduces the subject of selfish genetic elements in all its aspects, from molecular and genetic to behavioral and evolutionary. Burt and Trivers give us access for the first time to a crucial area of research—now developing at an explosive rate—that is cohering as a unitary whole, with its own logic and interconnected questions, a subject certain to be of enduring importance to our understanding of genetics and evolution.

A Guinea Pig's History Of Biology Simon and Schuster

In 1865, Gregor Mendel presented "Experiments in Plant-Hybridization," the results of his eight-year study of the principles of inheritance through experimentation with pea plants. Overlooked in its day, Mendel's work would later become the foundation of modern genetics. Did his pioneering research follow the rigors of real scientific inquiry, or was Mendel's data too good to be true—the product of doctored statistics? In *Ending the Mendel-Fisher Controversy*, leading experts present their conclusions on the legendary controversy surrounding the challenge to Mendel's findings by British statistician and biologist R. A. Fisher. In his 1936 paper "Has Mendel's Work Been Rediscovered?" Fisher suggested that Mendel's data could have been falsified in order to support his expectations. Fisher attributed the falsification to an unknown assistant of Mendel's. At the time, Fisher's criticism did not receive wide attention. Yet beginning in 1964, about the time of the centenary of Mendel's paper, scholars began to publicly discuss whether Fisher had successfully proven that Mendel's data was falsified. Since that time, numerous articles, letters, and comments have been published on the controversy. This self-contained volume includes everything the reader will need to know about the subject: an overview of the controversy; the original papers of Mendel and Fisher; four of the most important papers on the debate; and new updates, by the authors, of the latter four papers. Taken together, the authors contend, these voices argue for an end to the controversy-making this book the definitive last word on the subject.

Molecular Biology of the Cell Academic

Press

Genetics: Genes, Genomes, and Evolution unites evolution, genomics, and genetics in a single narrative approach. It is an approach that provides students with a uniquely flexible and contemporary view of genetics, genomics, and evolution. *Statistical Inference from Genetic Data on Pedigrees* Oxford University Press Mendel's principles of heredity: A defence, has been considered important throughout human history. In an effort to ensure that this work is never lost, we have taken steps to secure its preservation by republishing this book in a modern format for both current and future generations. This complete book has been retyped, redesigned, and reformatted. Since these books are not scans of the authors' original publications, the text is readable and clear.

Introduction to Genetics Garland Science

What are genes? What do genes do?

These seemingly simple questions are in fact challenging to answer accurately. As a result, there are widespread misunderstandings and over-simplistic answers, which lead to common conceptions widely portrayed in the media, such as the existence of a gene 'for' a particular characteristic or disease. In reality, the DNA we inherit interacts continuously with the environment and functions differently as we age. What our parents hand down to us is just the beginning of our life story. This comprehensive book analyses and explains the gene concept, combining philosophical, historical, psychological and educational perspectives with current research in genetics and genomics. It summarises what we currently know and do not know about genes and the potential impact of genetics on all our lives. *Making Sense of Genes* is an accessible but rigorous introduction to contemporary genetics concepts for non-experts, undergraduate students, teachers and healthcare professionals.

Encyclopedia of Evolutionary Biology

Springer Science & Business Media

Annotation While this monograph is not about show dogs or cats, its statistical methods could be applied to tracing the pedigree of these species as well as humans. Thompson (U. of Washington) covers such topics as genetic models, population allele frequencies, kinship/inbreeding coefficients, and Monte Carlo estimation. Includes supporting tables and figures. Suitable as a supplementary text or primary text for advanced students. Lacks an index. c. Book News Inc.

A History of Genetics Springer Science

& Business Media

Designed for a one or two semester non-majors course in introductory biology taught at most two and four-year colleges. This course typically fulfills a general education requirement, and rather than emphasizing mastery of technical topics, it focuses on the understanding of biological ideas and concepts, how they relate to real life, and appreciating the scientific methods and thought processes. Given the authors' work in and dedication to science education, this text's writing style, pedagogy, and integrated support package are all based on classroom-tested teaching strategies and learning theory. The result is a learning program that enhances the effectiveness & efficiency of the teaching and learning experience in the introductory biology course like no other before it.

Biology Academic Press

Encyclopedia of Evolutionary Biology, Four Volume Set is the definitive go-to

reference in the field of evolutionary biology. It provides a fully comprehensive review of the field in an easy to search structure. Under the collective leadership of fifteen distinguished section editors, it is comprised of articles written by leading experts in the field, providing a full review of the current status of each topic. The articles are up-to-date and fully illustrated with in-text references that allow readers to easily access primary literature. While all entries are authoritative and valuable to those with advanced understanding of evolutionary biology, they are also intended to be accessible to both advanced undergraduate and graduate students. Broad topics include the history of evolutionary biology, population genetics, quantitative genetics; speciation, life history evolution, evolution of sex and mating systems, evolutionary biogeography, evolutionary developmental biology, molecular and genome evolution, coevolution, phylogenetic methods, microbial evolution, diversification of plants and fungi, diversification of animals, and applied evolution. Presents fully comprehensive content, allowing easy access to fundamental information and links to primary research Contains concise articles by leading experts in the field that ensures current coverage of each topic Provides ancillary learning tools like tables, illustrations, and multimedia features to assist with the comprehension process

Human Genes and Genomes Cambridge University Press

"The Encyclopedia of Genetics provides the most complete and authoritative coverage of genetics ever published. Dr.

Sydney Brenner, the 2002 Nobel Prize winner for Physiology or Medicine, and Professor Jeffrey H. Miller of UCLA have gathered the world's top geneticists to contribute to this outstanding collection. Diverse information is compiled into a single, comprehensive source, containing a clear presentation of cutting-edge knowledge. Easy-to-use and well-organized, the Encyclopedia of Genetics is an invaluable reference work for everyone from the academic researcher to the educated layperson. The Encyclopedia provides:

- * Comprehensive coverage: at 4 volumes and over 1,700 entries this is the largest Genetics reference work currently available
- * Complete, up-to-date information
- * Initial online access to the online version, which includes fully searchable text and numerous hyperlinks to related sites
- * Cross-references to related articles within the Encyclopedia
- * 2800 pages; two-color printing throughout text and figures; color plate sections also included.

--Provided by publisher [Biology for AP® Courses](#) Remedica

This book covers the statistical models and methods that are used to understand human genetics, following the historical and recent developments of human genetics. Starting with Mendel's first experiments to genome-wide association studies, the book describes how genetic information can be incorporated into statistical models to discover disease genes. All commonly used approaches in statistical genetics (e.g. aggregation analysis, segregation, linkage analysis, etc), are used, but the focus of the book is modern approaches to association analysis. Numerous examples illustrate key points throughout the text, both of Mendelian and complex genetic disorders. The intended audience is statisticians, biostatisticians, epidemiologists and quantitatively-oriented geneticists and health scientists wanting to learn about statistical methods for genetic analysis, whether to better analyze genetic data, or to pursue research in methodology. A background in intermediate level statistical methods is required. The authors include few mathematical derivations, and the exercises provide problems for students with a broad range of skill levels. No background in genetics is assumed.

The Biology of Reproduction Elsevier
In the small "Fly Room" at Columbia University, T.H. Morgan and his students, A.H. Sturtevant, C.B. Bridges, and H.J. Muller, carried out the work that laid the foundations of modern, chromosomal genetics. The excitement of those times, when the whole field of genetics was being

created, is captured in this book, written in 1965 by one of those present at the beginning. His account is one of the few authoritative, analytic works on the early history of genetics. This attractive reprint is accompanied by a website, <http://www.esp.org/books/sturt/history/> offering full-text versions of the key papers discussed in the book, including the world's first genetic map.

Concepts of Biology IMS

NO description available

[Genes in Conflict](#) John Wiley & Sons

The explosion of the field of genetics over the last decade, with the new technologies that have stimulated research, suggests that a new sort of reference work is needed to keep pace with such a fast-moving and interdisciplinary field.

Brenner's Encyclopedia of Genetics, Second Edition, Seven Volume Set, builds on the foundation of the first edition by addressing many of the key subfields of genetics that were just in their infancy when the first edition was published. The currency and accessibility of this foundational content will be unrivalled, making this work useful for scientists and non-scientists alike. Featuring relatively short entries on genetics topics written by experts in that topic, Brenner's Encyclopedia of Genetics, Second Edition, Seven Volume Set provides an effective way to quickly learn about any aspect of genetics, from Abortive Transduction to Zygotes. Adding to its utility, the work provides short entries that briefly define key terms, and a guide to additional reading and relevant websites for further study. Many of the entries include figures to explain difficult concepts. Key terms in related areas such as biochemistry, cell, and molecular biology are also included, and there are entries that describe historical figures in genetics, providing insights into their careers and discoveries. This 7-volume set represents a 25% expansion from the first edition, with over 1600 articles encompassing this burgeoning field Thoroughly up-to-date, with many new topics and subfields covered that were in their infancy or not in existence at the time of the first edition. Timely coverage of emergent areas such as epigenetics, personalized genomic medicine, pharmacogenetics, and genetic enhancement technologies

Interdisciplinary and global in its outlook, as befits the field of genetics Brief articles, written by experts in the field, which not only discuss, define, and explain key elements of the field, but also provide definition of key terms, suggestions for further reading, and biographical sketches of the key people in the history of genetics

Chromosome identification: Medicine and Natural Sciences Academic Press

The Foundations of Genetics describes the historical development of genetics with emphasis on the contributions to advancing genetical knowledge and the various applications of genetics. The book reviews the work of Gregor Mendel, his Law of Segregation, and of Ernst Haeckel who suggested that the nucleus is that part of the cell that is responsible for heredity. The text also describes the studies of W. Johannsen on "pure lines," and his introduction of the terms gene, genotype, and phenotype. The book explains the theory of the gene and the notion that hereditary particles are borne by the chromosomes (Sutton-Boveri hypothesis). Of the constituent parts of the nucleus only the chromatin material divides at mitosis and segregates during maturation. Following studies confirm that the chromatin material, present in the form of chromosomes with a constant and characteristic number and appearance for each species, is indeed the hereditary material. The book describes how Muller in 1927, showed that high precision energy radiation is the external cause to mutation in the gene itself if one allele can mutate without affecting its partner. The superstructure of genetics built upon the foundations of Mendelism has many applications including cytogenetics, polyploidy, human genetics, eugenics, plant breeding, radiation genetics, and the evolution theory. The book can be useful to academicians and investigators in the fields of genetics such as biochemical, biometrical, microbial, and pharmacogenetics. Students in agriculture, anthropology, botany, medicine, sociology, veterinary medicine, and zoology should add this text to their list of primary reading materials.

The Physical Basis of Heredity Cosimo, Inc.

Polyploidy – whole-genome duplication (WGD) – is a fundamental driver of biodiversity with significant consequences for genome structure, organization, and evolution. Once considered a speciation process common only in plants, polyploidy is now recognized to have played a major role in the structure, gene content, and evolution of most eukaryotic genomes. In fact, the diversity of eukaryotes seems closely tied to multiple WGDs. Polyploidy generates new genomic interactions – initially resulting in “genomic and transcriptomic shock” – that must be resolved in a new polyploid lineage. This process essentially acts as a “reset” button, resulting in genomic changes that may ultimately promote adaptive

speciation. This book brings together for the first time the conceptual and theoretical underpinnings of polyploid genome evolution with syntheses of the patterns and processes of genome evolution in diverse polyploid groups. Because polyploidy is most common and best studied in plants, the book emphasizes plant models, but recent studies of vertebrates and fungi are providing fresh perspectives on factors that allow polyploid speciation and shape polyploid genomes. The emerging paradigm is that polyploidy – through alterations in genome structure and gene regulation – generates genetic and phenotypic novelty that manifests itself at the chromosomal, physiological, and organismal levels, with long-term ecological and evolutionary consequences. Genetic Control of Malaria and Dengue Nelson Thornes Morrison (human genetics, University of Ulster, UK) and Spence (biomedical science, University of Ulster, UK) offer an accessible reference on the genetic disorders that surgeons can expect to meet in general surgical practice. Written in non-technical language, with a glossary, list of abbreviations, and color and b&w photos and medical images, the book supplies an introduction to the nomenclature and technology of molecular biology, and will be a useful starting point for those who wish to extend their knowledge. Annotation :2005 Book News,

Inc., Portland, OR (booknews.com). *Genetics for Surgeons* John Wiley & Sons Introduction When the study of heredity and variation first came to be treated as a scientific subject-and this, one must remember, was only just over a hundred years ago-there was an unfortunate separation between the disciplines of cytology and experimental breeding. This separation was based partly on a lack of understanding and partly on a lack of the desire to understand. Even WILLIAM BATESON, the first apostle of mendelism in England, had a blind spot for cytology and for many years dogmatically refused to believe that MENDEL'S determinants were transmitted and distributed by the chromosomes. This separation between cytology and experimental breeding is one which persists, in a measure, even today, simply because there are two quite different, though complementary, techniques available for the study of heredity and variation. On the one hand, one can study directly the structure and behaviour of the actual vehicles which transmit the genetic determinants from one generation to the next. This is the method employed by those who study genetics through a microscope. The alternative method is that used by the experimental breeder who, in default of being able to watch the hereditary factors segregate from each other directly, is obliged to examine the constitution of the germ cells indirectly by sampling, and

usually at random, the products of a controlled mating.

The Foundations of Genetics CRC Press Experiments which in previous years were made with ornamental plants have already afforded evidence that the hybrids, as a rule, are not exactly intermediate between the parental species. With some of the more striking characters, those, for instance, which relate to the form and size of the leaves, the pubescence of the several parts, etc., the intermediate, indeed, is nearly always to be seen; in other cases, however, one of the two parental characters is so preponderant that it is difficult, or quite impossible, to detect the other in the hybrid. from 4. The Forms of the Hybrid One of the most influential and important scientific works ever written, the 1865 paper Experiments in Plant Hybridisation was all but ignored in its day, and its author, Austrian priest and scientist GREGOR JOHANN MENDEL (1822-1884), died before seeing the dramatic long-term impact of his work, which was rediscovered at the turn of the 20th century and is now considered foundational to modern genetics. A simple, eloquent description of his 1856-1863 study of the inheritance of traits in pea plants Mendel analyzed 29,000 of them this is essential reading for biology students and readers of science history. Cosimo presents this compact edition from the 1909 translation by British geneticist WILLIAM BATESON (1861-1926).