

By Daniel L Hartl Essential Genetics A Genomics Perspective 6th Edition

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Genetics and Genomics in Medicine - Tom Strachan 2014-06-02

Genetics and Genomics in Medicine is a new textbook written for undergraduate students, graduate students, and medical researchers that explains the science behind the uses of genetics and genomics in medicine today. Rather than focusing narrowly on rare inherited and chromosomal disorders, it is a comprehensive and integrated account of how geneti

A Primer of Population Genetics - Daniel L. Hartl 2000-01

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.

Genetics - Daniel L. Hartl 1998

Essential Genetics - Daniel L. Hartl 2006

Completely updated to reflect new discoveries and current thinking in the field, the Fourth Edition of Essential Genetics is designed for the shorter, less comprehensive introductory course in genetics. The text is written in a clear, lively, and concise manner and includes many special features that make the book user friendly. Topics were carefully chosen to provide a solid foundation for understanding the basic processes of gene transmission, mutation, expression, and regulation. The text also helps students develop skills in problem solving, achieve a sense of the social and historical context in which genetics has developed, and become aware of the genetic resources and information available through the Internet.

Genetics of the Dog - Elaine A. Ostrander 2012-01-01

Recognizing the significant advances made in the field of animal genetics in the ten years since the first edition of "The Genetics of the Dog", this new edition of the successful 2001 book provides a comprehensive update on the subject, along with new material on topics of current and growing interest. Existing chapters on essential topics such as immunogenetics, genetics of diseases, developmental genetics and the genetics of behaviour have been fully updated, while new authors report on the latest advances in areas such as genetic diversity of dog breeds, canine genomics, olfactor.

The Edge of Evolution - Michael J. Behe 2008-06-17

The author of Darwin's Black Box draws on new findings in genetics to pose an argument for intelligent design that refutes Darwinian beliefs about evolution while offering alternative analyses of such factors as disease, random mutations, and the human struggle for survival. Reprint. 40,000 first printing.

Principles of Population Genetics - Daniel L. Hartl 2007

This edition provides a balanced presentation of theory and observation. It introduces the principles of genetics and statistics that are relevant to population studies, and examines the forces affecting genetic variation

from the molecular to the organismic level.

Outlines and Highlights for Essential Genetics - Cram101 Textbook Reviews 2011-11

Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanys: 9780763773649 .

A Primer of Molecular Population Genetics - Asher D. Cutter 2019

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.

Student Solutions Manual and Supplemental Problems to Accompany Genetics: Analysis of Genes and Genomes - Daniel Hartl 2011-10-13

This must-have student resource contains complete solutions to all end-of-chapter problems in Genetics: Analysis of Genes and Genomes, Eighth Edition, by Daniel L. Hartl and Maryellen Ruvolo, as well as a wealth of supplemental problems and exercises with full solutions, a complete chapter summary, and keyword section. The supplemental problems provided in this manual are designed as learning opportunities rather than exercises to be completed by rote. They are organized into chapters that parallel those of the main text, and all problems can be solved through application of the concepts and principles explained in Genetics, Eighth Edition.

Population Genetics - John H. Gillespie 2004-08-06

Publisher Description

Advanced Genetic Analysis - R. Scott Hawley 2009-05-06

Advanced Genetic Analysis brings a state-of-the-art, exciting new approach to genetic analysis. Focusing on the underlying principles of modern genetic analysis, this book provides the 'how' and 'why' of the essential analytical tools needed. The author's vibrant, accessible style provides an easy guide to difficult genetic concepts, from mutation and gene function to gene mapping and chromosome segregation. Throughout, a balanced range of model organisms and timely examples are used to illustrate the theoretical basics. Basic principles - Focuses students attention on the 'how' and 'why' of the essential analytical tools. Vibrant, accessible style provides an easy guide through difficult genetic concepts and techniques. Text boxes highlight key questions and timely examples. Boxes of key information in each chapter, chapter summaries and extensive references - prompt the student to synthesise and reinforce the chapter material. Special reference section addressing a range of model organisms to help provide a particularly relevant context for students' research interests.

Population Genomics with R - Emmanuel Paradis 2020-03-13

Population Genomics With R presents a multidisciplinary approach to the analysis of population genomics. The methods treated cover a large

number of topics from traditional population genetics to large-scale genomics with high-throughput sequencing data. Several dozen R packages are examined and integrated to provide a coherent software environment with a wide range of computational, statistical, and graphical tools. Small examples are used to illustrate the basics and published data are used as case studies. Readers are expected to have a basic knowledge of biology, genetics, and statistical inference methods. Graduate students and post-doctorate researchers will find resources to analyze their population genetic and genomic data as well as help them design new studies. The first four chapters review the basics of population genomics, data acquisition, and the use of R to store and manipulate genomic data. Chapter 5 treats the exploration of genomic data, an important issue when analysing large data sets. The other five chapters cover linkage disequilibrium, population genomic structure, geographical structure, past demographic events, and natural selection. These chapters include supervised and unsupervised methods, admixture analysis, an in-depth treatment of multivariate methods, and advice on how to handle GIS data. The analysis of natural selection, a traditional issue in evolutionary biology, has known a revival with modern population genomic data. All chapters include exercises. Supplemental materials are available on-line (<http://ape-package.ird.fr/PGR.html>).

Introduction to Genomics - Arthur M. Lesk 2007

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.

Loose-leaf Version for Biology How Life Works - James Morris
2019-01-04

BIOLOGY: HOW LIFE WORKS has been a revolutionary force for both instructors and students in the majors biology course. It was the first truly comprehensive set of integrated tools for introductory biology, seamlessly incorporating powerful text, media, and assessment to create the best pedagogical experience for students. THE VISUAL PROGRAM The already impressive visual program has been greatly improved and expanded. The powerful Visual Synthesis tools have been reimaged, allowing for more flexibility for both students and instructors. A new Tour Mode allows for learning objective-driven tours of the material and deep linking from the eText allow the student to jump straight from the text into a rich visual representation of the content. Instructors can also create customized tours to use for engaging in-class presentations. And finally, new animations have been added to the library, including a new 3D animation to support the animal physiology content. A FOCUS ON SCIENTIFIC SKILLS The third edition does even more to teach students the skills they need to think like a scientist, along with the content they need to move beyond the introductory course. New Skills Primers are self-paced tutorials that guide students to learn, practice, and use skills like data visualization, experimental design, working with numbers, and more. New How Do We Know? activities accompany the feature in the text and teach students to understand scientific inquiry. THE HUB The best teaching resources in the world aren't of use if instructors can't find them. The HUB provides a one-stop destination for valuable teaching and learning resources, including all of our well-vetted in-class activities. IMPROVED ORGANIZATION OF TOPICS We implemented several organizational changes based on extensive user feedback with the goal of creating an improved narrative for students and a more flexible teaching framework for instructors. A new chapter on Animal Form, Function, and Evolutionary History leads off the animal anatomy and physiology chapters to provide a whole-body view of structure and function and to provide better context for the more specific systems in following chapters. The ecology coverage has been enriched and reorganized for a more seamless flow. A new chapter on Ecosystem Ecology combines ecosystem concepts formerly housed in separate chapters to present a more cohesive view of the flow of matter and energy in ecosystems. All of these changes and improvements represent the next step in the life of Biology: How Life Works. We think we have created the best learning resource for introductory biology students, and we think instructors will find joy in the improvements they can make in their classes with these materials.

The Organic Chem Lab Survival Manual - James W. Zubrick
2020-02-05

Teaches students the basic techniques and equipment of the organic chemistry lab — the updated new edition of the popular hands-on guide. The Organic Chem Lab Survival Manual helps students understand the basic techniques, essential safety protocols, and the standard

instrumentation necessary for success in the laboratory. Author James W. Zubrick has been assisting students navigate organic chemistry labs for more than three decades, explaining how to set up the laboratory, make accurate measurements, and perform safe and meaningful experiments. This practical guide covers every essential area of lab knowledge, from keeping detailed notes and interpreting handbooks to using equipment for chromatography and infrared spectroscopy. Now in its eleventh edition, this guide has been thoroughly updated to cover current laboratory practices, instruments, and techniques. Focusing primarily on macroscale equipment and experiments, chapters cover microscale jointware, drying agents, recrystallization, distillation, nuclear magnetic resonance, and much more. This popular textbook: Familiarizes students with common lab instruments Provides guidance on basic lab skills and procedures Includes easy-to-follow diagrams and illustrations of lab experiments Features practical exercises and activities at the end of each chapter Provides real-world examples of lab notes and instrument manuals The Organic Chem Lab Survival Manual: A Student's Guide to Techniques, 11th Edition is an essential resource for students new to the laboratory environment, as well as those more experienced seeking to refresh their knowledge.

Population Genetics with R - Áki Jarl Láruson 2021-02-24

Population genetics is an inherently quantitative discipline, yet often focuses upon abstract concepts which can be difficult to conceptualize and appropriately visualize at first glance. This book focuses on applying the hugely popular R software specifically to the field, offering an accessible, step-by-step guide to tackling the challenges of achieving effective data interpretation and summary. The authors adopt an engaging "learning by doing" approach that will enable readers to develop an intuitive understanding of key population genetics concepts through the use of R. Beginning with the groundwork of installing and using R (including CRAN and the RStudio IDE), the book works through the use of basic commands for data manipulation. An introduction to basic terminology in population genetics follows, clearly explaining how these fundamental assumptions can provide insights and form basic inferences for real populations. The focus then moves onto statistical tests including writing and running algorithms as functions. Subsequent chapters examine genetic variation, adaptation, and natural selection as well as different approaches to population differences. Importantly, the accompanying set of practical exercises demonstrate that implementing all of these concepts via programming can actually help greatly in understanding them, even if they may at first seem insurmountably complex. Finally, this accessible textbook points the way forwards to other key concepts that are important to understanding modern day population genetics research (in particular coalescent theory) and offers the reader useful launching points for further learning. Population Genetics with R is aimed at students ranging from undergraduate to postgraduate level in the fields of population genetics, ecology, evolutionary biology, conservation genetics, computational biology, and biostatistics.

Genetics - Daniel Hartl 2011-08-05

This textbook gives an introduction to genetics and genomics at the college level. It contains a chapter on human genetic evolution. Other chapters treat transmission genetics, molecular genetics and evolutionary genetics and provide an understanding of the basic process of gene transmission, mutation, expression and regulation.

PCR Technology - Henry Erlich 2015-12-31

This is an introduction to the methods and applications of polymerase chain reaction (PCR) technology, a technology developed by Erlich's group at Cetus and Cetus, and is expected to be used in all biology laboratories worldwide within the next few years.

Studyguide for Essential Genetics by Hartl, Daniel L., ISBN 9781449686482 - Cram101 Textbook Reviews 2016-07-31

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Anatomy of Gene Regulation - Panagiotis A. Tsonis 2003-01-13

No longer simple line drawings on a page, molecular structures can now be viewed in full-figured glory, often in color and even with interactive possibilities. Anatomy of Gene Regulation is the first book to present the parts and processes of gene regulation at the three-dimensional level. Vivid structures of nucleic acids and their companion proteins are revealed in full-color, three-dimensional form. Beginning with a general introduction to three-dimensional structures, the book looks at the

organization of the genome, the structure of DNA, DNA replication and transcription, splicing, protein synthesis, and ultimate protein death. Throughout, the text employs a discussion of genetics and structural mechanics. The concise and unique synthesis of information will offer insight into gene regulation, and into the development of methods to interfere with regulation at diseased states. This textbook and its accompanying web site are appropriate for both undergraduate and graduate students in genetics, molecular biology, structural biology, and biochemistry courses.

Lewin's CELLS - George Plopper 2013-12-02

Ideal text for undergraduate and graduate students in advanced cell biology courses Extraordinary technological advances in the last century have fundamentally altered the way we ask questions about biology, and undergraduate and graduate students must have the necessary tools to investigate the world of the cell. The ideal text for students in advanced cell biology courses, Lewin's CELLS, Third Edition continues to offer a comprehensive, rigorous overview of the structure, organization, growth, regulation, movements, and interactions of cells, with an emphasis on eukaryotic cells. The text provides students with a solid grounding in the concepts and mechanisms underlying cell structure and function, and will leave them with a firm foundation in cell biology as well as a "big picture" view of the world of the cell. Revised and updated to reflect the most recent research in cell biology, Lewin's CELLS, Third Edition includes expanded chapters on Nuclear Structure and Transport, Chromatin and Chromosomes, Apoptosis, Principles of Cell Signaling, The Extracellular Matrix and Cell Adhesion, Plant Cell Biology, and more. All-new design features and a chapter-by-chapter emphasis on key concepts enhance pedagogy and emphasize retention and application of new skills. Thorough, accessible, and essential, Lewin's CELLS, Third Edition, turns a new and sharper lens on the fundamental units of life

Genetics - Hartl 2011-08-05

Thoroughly revised and updated with the latest data from this every changing field, the Eighth Edition of Genetics: Analysis of Genes and Genomes provides a clear, balanced, and comprehensive introduction to genetics and genomics at the college level. Expanding upon the key elements that have made this text a success, Hartl has included updates throughout, as well as a new chapter dedicated to genetic evolution. He continues to treat transmission genetics, molecular genetics, and evolutionary genetics as fully integrated subjects and provide students with an unprecedented understanding of the basic process of gene transmission, mutation, expression, and regulation. New chapter openers include a new section highlighting scientific competencies, while end-of-chapter Guide to Problem-Solving sections demonstrate the concepts needed to efficiently solve problems and understand the reasoning behind the correct answer.

Introduction to Genetic Principles - David Hyde 2008-05-01

Hyde's "Introduction to Genetics" teaches the principles of genetics with an innovative approach that emphasizes the basic concepts involved in solving problems as well as teaching students how to manipulate genetic data. While most genetics textbooks provide some examples and several problems for the student to work, the texts primarily stress facts and historical information. It is often left to the student to make the connection from what is in the text to elucidating the approaches to solve problems. Dr. David Hyde presents these skills to the students throughout the narrative in a stepped-out fashion, making an explicit tie between the facts and their application. This text maintains the rigor that faculty require in a genetics book, while incorporating a student-friendly presentation style that helps the reader comprehend the material.

Genetics - Daniel L. Hartl 1994

An Introduction to Statistical Genetic Data Analysis - Melinda C. Mills 2020-02-18

A comprehensive introduction to modern applied statistical genetic data analysis, accessible to those without a background in molecular biology or genetics. Human genetic research is now relevant beyond biology, epidemiology, and the medical sciences, with applications in such fields as psychology, psychiatry, statistics, demography, sociology, and economics. With advances in computing power, the availability of data, and new techniques, it is now possible to integrate large-scale molecular genetic information into research across a broad range of topics. This book offers the first comprehensive introduction to modern applied statistical genetic data analysis that covers theory, data preparation, and analysis of molecular genetic data, with hands-on computer exercises. It is accessible to students and researchers in any empirically oriented medical, biological, or social science discipline; a background in

molecular biology or genetics is not required. The book first provides foundations for statistical genetic data analysis, including a survey of fundamental concepts, primers on statistics and human evolution, and an introduction to polygenic scores. It then covers the practicalities of working with genetic data, discussing such topics as analytical challenges and data management. Finally, the book presents applications and advanced topics, including polygenic score and gene-environment interaction applications, Mendelian Randomization and instrumental variables, and ethical issues. The software and data used in the book are freely available and can be found on the book's website.

Essential Genetics - Daniel Hartl 2011

Updated to reflect the latest discoveries in the field, the Fifth Edition of Hartl's classic text provides an accessible, student-friendly introduction to contemporary genetics. Designed for the shorter, less comprehensive introductory course, *Essential Genetics: A Genomic Perspective*, Fifth Edition includes carefully chosen topics that provide a solid foundation to the basic understanding of gene mutation, expression, and regulation. New and updated sections on genetic analysis, molecular genetics, probability in genetics, and pathogenicity islands ensure that students are kept up-to-date on current key topics. The text also provides students with a sense of the social and historical context in which genetics has developed. The updated companion web site provides numerous study tools, such as animated flashcards, crosswords, practice quizzes and more! New and expanded end-of-chapter material allows for a mastery of key genetics concepts and is ideal for homework assignments and in-class discussion.

Genetics - Eldon John Gardner 1975

Outlines and Highlights for Essential Genetics - Cram101 Textbook Reviews 2010-01

Never HIGHLIGHT a Book Again! Virtually all testable terms, concepts, persons, places, and events are included. Cram101 Textbook Outlines gives all of the outlines, highlights, notes for your textbook with optional online practice tests. Only Cram101 Outlines are Textbook Specific. Cram101 is NOT the Textbook. Accompanys: 9780763735272

Studyguide for Essential Genetics - Cram101 Textbook Reviews 2013-05

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Essential Genetics and Genomics - Daniel L. Hartl 2018-11-02

Essential Genetics and Genomics is the ideal textbook for the shorter, less comprehensive genetics course. It presents carefully chosen topics that provide a solid foundation to the basic understanding of gene mutation, expression, and regulation.

Ending the Mendel-Fisher Controversy - Allan Franklin 2008-03-15

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.

Analysis of Genes and Genomes - Richard J. Reece 2004

Analysis of Genes and Genomes is a clear introduction to the theoretical and practical basis of genetic engineering, gene cloning and molecular biology. All aspects of genetic engineering in the post-genomic era are covered, beginning with the basics of DNA structure and DNA

metabolism. Using an example-driven approach, the fundamentals of creating mutations in DNA, cloning in bacteria, yeast, plants and animals are all clearly presented. Newer technologies such as DNA micro and macroarrays, proteomics and bioinformatics are introduced in later chapters helping students to analyse and understand the vast amounts of data that are now available through genome sequence and function projects. Aimed at students with a basic knowledge of the molecular side of biology, this will be invaluable to those looking to better understand the complexities and capabilities of these important new technologies. A modern post-genome era introduction to key techniques used in genetic engineering. An example driven past-to-present approach to allow the experiments of today to be placed in an historical context Beautifully illustrated in full colour throughout. Associated website including updates, additional content and illustrations

A Primer of Population Genetics and Genomics - Daniel L. Hartl 2020

This accessible primer has been completely revised and updated to provide a concise but comprehensive introduction to the basic concepts of population genetics and genomics.

Stem Cell Biology - Daniel R. Marshak 2001

Stem cells are the focus of intense interest from a growing, multidisciplinary community of investigators with new tools for isolating and characterizing these elusive cell types. This volume, which features contributions from many of the world's leading laboratories, provides a uniquely broad and authoritative basis for understanding the biology of stem cells and the current excitement about their potential for clinical exploitation. It is an essential work of reference for investigators in embryology, hematology, and neurobiology, and their potential for clinical exploitation. It is an essential work of reference for investigators in embryology, hematology, and neurobiology, and their collaborators in the emerging field of regenerative medicine.

Evolutionary Genetics - Glenn-Peter Sætre 2019-05

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.

Grand Celebration: 10th Anniversary of the Human Genome Project - Pabulo H. Rampelotto 2018-10-01

This book is a printed edition of the Special Issue "Grand Celebration: 10th Anniversary of the Human Genome Project" that was published in *Genes*

A Primer of Ecological Genetics - Jeffrey K. Conner 2004-01

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.

Essential Genetics - Daniel L. Hartl 2014

This book provides an introduction to modern genetics.

Molecular Population Genetics - Matthew William Hahn 2018

Published by Sinauer Associates, an imprint of Oxford University Press. Provides descriptions of the methods and tools used in molecular population genetics, which has combined advances in molecular biology and genomics with mathematical and empirical findings to uncover the history of natural selection and demographic shifts in many organisms.