# Principles of Population Genetics

*Daniel L. Hartl, Andrew G. Clark*
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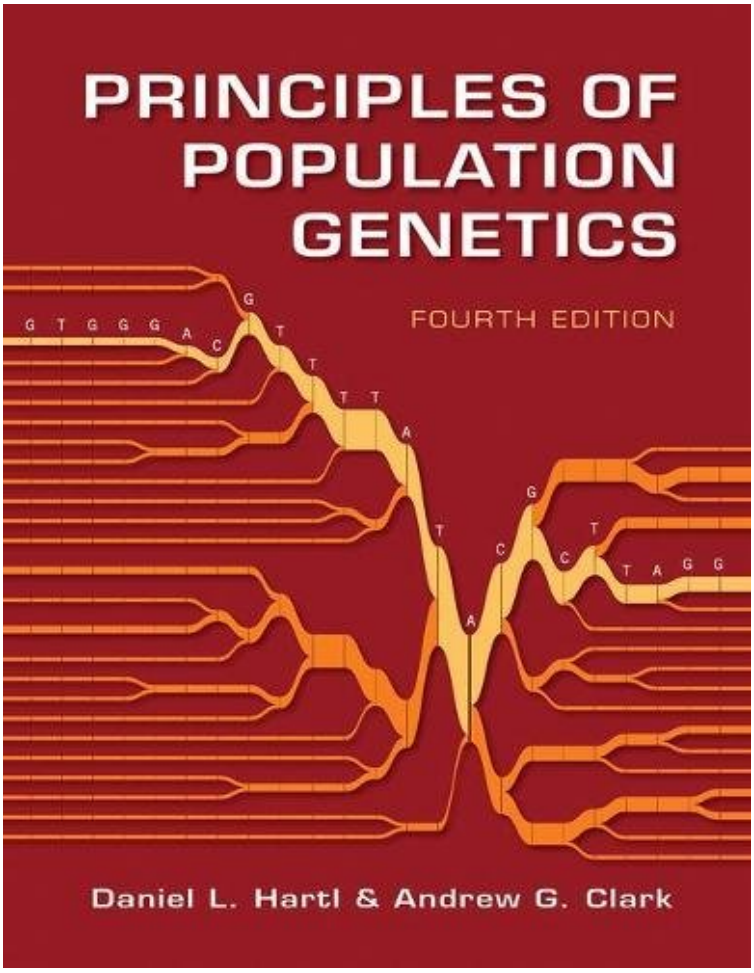




#277734 in Books Sinauer Associates, Inc. 2006-12-31 2006-12-31Original language:EnglishPDF # 1 7.20 x 1.50 x 9.50l, 2.69 #File Name: 0878933085545 pages | File size: 45.Mb

**Daniel L. Hartl, Andrew G. Clark : Principles of Population Genetics** before purchasing it in order to gage whether or not it would be worth my time, and all praised Principles of Population Genetics:

1 of 4 people found the following review helpful. Awesome book!By ShumanIt's a great book and way better than the previous edition! Population Genetics' concepts and techniques are improving every year and this book is up to date with that. The book came in excellent condition and was shipped and delivered really quickly by the seller.8 of 8 people found the following review helpful. Generally Very Good, But Could Use a RevisionBy Christopher BirdPrinciples of Population Genetics is the modern "Bible" of population genetics. I chose it as the text for a pop gen class based upon recommendations of others, its thorough treatment of the material, and despite being published in 2007, more up to date with genomics than the other texts available. If graduate students were to only have one book addressing population genetics, I decided that this was the most useful.I like that Hartle Clarke show a lot of the equation manipulations rather than just showing the end result, but as others have noted, there are some errors.The

treatments of most topics are excellent, but I found Chapter 5, Selection, to be particularly troublesome. I actually had to switch texts for this section because of errors and an incomplete development of the principles. For example, students are left in the dark about the underlying models of s (selection coefficient) and w (fitness coefficient), where sometimes s ranges from 0 to 1 and other times it ranges from -1 to 1 . Both are utilized, but it is never explained, making for a confusing experience.Beyond that, the order in which the chapters are presented could be improved upon (1,2,3,4,6,5,8,7,9,10). Inbreeding, Pop Subdivision, and Migration should come directly after the chapter on Mutation and Neutral Theory. This way, Selection is not breaking up similar topics. Selection should be followed by the Quantitative Traits chapter, which is about selection.I'm hoping that the 5th edition will be released soon and address the issues raised here and by others.6 of 17 people found the following review helpful. Principles of Population GeneticsBy EDUIt is a classical text, but it lack of a chapter on Conservation Genetics

Principles of Population Genetics, Fourth Edition, is a thoroughly updated introduction to the field that is at last ascending to its rightful position of centrality to evolutionary genomics and human genetics. Rapid and inexpensive genotyping and sequencing have produced a profusion of data on genetic variation, along with a pressing need to inform students from many fields about the models that describe the underlying processes that give rise to observed patterns of genetic variation. This book provides a balanced presentation of theory and observation for students at the undergraduate and graduate levels as well as newcomers from fields like human genetics. The logical development of the models of population genetics encourages a deeper understanding of the principles, and the text has been rewritten with the goal to optimize its use as a teaching aid. 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. Integrated throughout the book are descriptions of molecular methods used to study variation in natural populations, as well as explanations of the relevant estimation theory using actual data.Chapter 1 presents the fundamental observations and means for quantifying amounts and structure of genetic variation in natural populations. Chapter 2 gives a detailed examination of the implications of random mating for one locus and multiple loci and establishes the basic principles for thinking about mathematical models of variation. Chapter 3 presents the classic Wright-Fisher model as well as the coalescent approaches to random genetic drift. Chapter 4 adds mutation to models of drift and lays down the foundations for the neutral theory of molecular evolution. Natural selection in its many guises gets a thorough coverage in Chapter 5. Chapter 6 examines population subdivision and its consequences for the distribution of genetic variation among subpopulations, including the hierarchical F statistics used in estimating these effects. Molecular population genetics, including applications of coalescent theory, is the subject of Chapter 7. Evolutionary quantitative genetics is covered in Chapter 8, including an up-to-date treatment of the use of molecular markers for mapping and assisting in selection of quantitative characters. Chapter 9 is a new addition and covers the exciting field of population genomics, or the analysis of population genetic principles at a genome-wide scale. Finally, because of the explosion in genome-wide polymorphism data in humans and the realization that many problems in empirical population genetics need to be tuned to special, non-equilibrium circumstances of human populations, the authors devote Chapter 10 to human population genetics.Applications of principles discussed in the text are illustrated with numerous examples of worked problems, using actual data. Many vital Web links are scattered throughout the text to connect the material to up-to-the-minute progress in this exciting field. Each chapter ends with a complete summary and offers several problems for solution, to reinforce and further develop the concepts.

From Book Newslt:;st The first edition (1980) is one of the 10 titles on quantitative genetics/population genetics cited in BCL3. For upper-level undergraduates and beginning graduate students with some background in genetics and population biology. Contains nine chapters with illustrations, boxed examples and problems. Annotation copyright Book News, Inc. Portland, Or. "It is a pleasure to read this new edition of a classical textbook on population genetics. It shows very convincingly how population genetics has been revamped in the past twenty years by the introduction of new statistical and computational methods (in particular, coalescent theory), and the advent of genomic data, as well as how these developments changed a formerly rather arcane science and moved it toward the center of modern biology. In summary, the essence of population genetics is nicely condensed in this book. The presentation is wonderfully balanced between theory and observation, as well as classical and recent data sets and analysis tools." --Wolfgang Stephan, The Quarterly of BiologyAbout the AuthorDaniel L. Hartl is Higgins Professor of Biology in the Department of Organismic and Evolutionary Biology at Harvard University. His laboratory studies population genetics, genomics, and molecular evolution. He has been honored with the Samuel Weiner Outstanding Scholar Award and Medal, the Medal of the Stazione Zoologica Anton Dohrn, and is an elected member of the National Academy of Sciences and the American Academy of Arts and Sciences. He is also a Past President of the Genetics Society of America and the Society for Molecular Biology and Evolution. Hartl's Ph.D. was awarded by the University of Wisconsin, he did postdoctoral studies at the University of California in Berkeley, and he has been on the faculty of the University of Minnesota, Purdue University and Washington University Medical School in St. Louis. In addition to more than 300 scientific articles, Hartl has authored or coauthored 24 books.Andrew G. Clark is Professor of Population Genetics in

the Department of Molecular Biology and Genetics at Cornell University. Earning a Ph.D. in Population Genetics at Stanford University, he did postdoctoral work at Arizona State University and the University of Aarhus, Denmark, and a sabbatical at the University of California at Davis. Prior to joining the Cornell faculty in 2002, he was a professor in the Department of Biology at Pennsylvania State University. Dr. Clark's research focuses on the genetic basis of adaptive variation in natural populations, with emphasis on quantitative modeling of phenotypes as networks of interacting genes. He was elected Fellow of the American Association for the Advancement of Science in 1994, and serves on review panels for the NIH, NSF, and the Max Planck Society. He also served as President of the Society for Molecular Biology and Evolution, and is on the Advisory Council for the National Human Genome Research Institute.