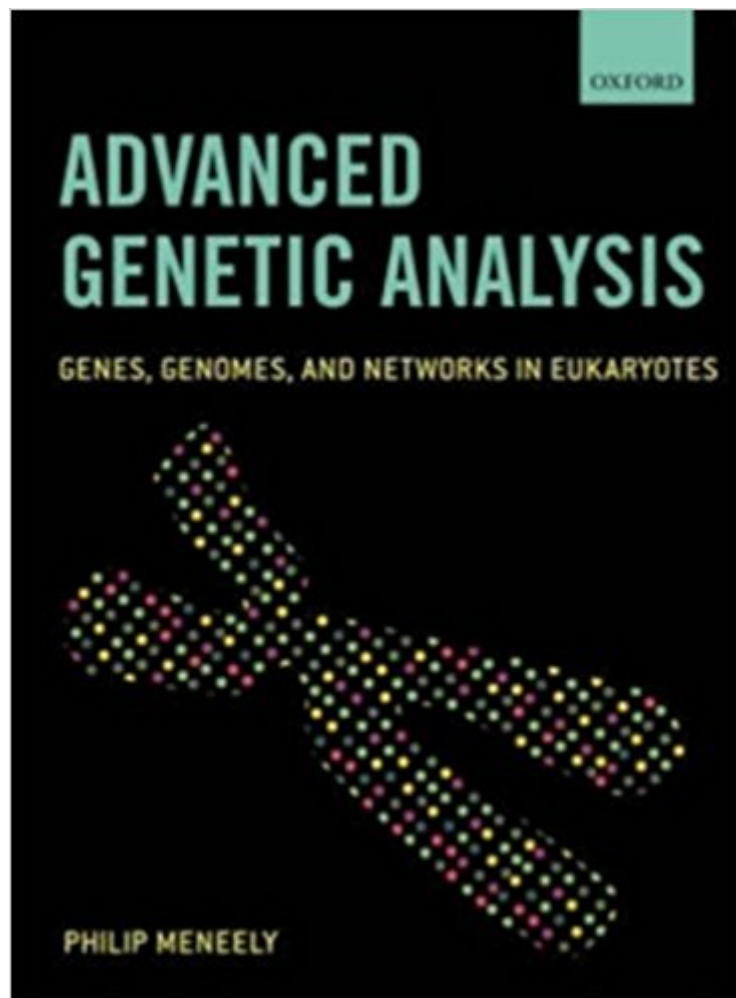




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# Advanced Genetic Analysis: Genes, Genomes, And Networks In Eukaryotes



## Synopsis

How can we explore gene expression in time and space? 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? Advanced Genetic Analysis probes fascinating questions such as these by asking "How can the principles of genetics be used as analytical tools to solve biological problems?" With its unique integration of genetics and molecular biology, Advanced Genetic Analysis provides a broad survey of how our understanding of key genetic phenomena can be used to understand biological systems. Opening with a brief overview of key genetic principles and model organisms, the book goes on to explore the use of gene mutations and the analysis of gene expression and activity, before considering the interactions of genes during suppression and epistasis, and how we study gene networks. Drawing on the latest experimental tools, including microarrays, RNAi, and bioinformatics approaches, Advanced 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 clarity of explanation and insight. We are in an age where, despite knowing so much about biological systems, we are just beginning to realize how much more there is still to understand. Advanced Genetic Analysis is the ideal guide to how we can use the awesome power of molecular genetics to further our understanding.

## Book Information

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## Customer Reviews

'It is refreshing to see the focus move away from the detail of molecular mechanism towards understanding and scientific investigation' The Society for General Microbiology 'Philip Meneely makes a concerted effort to tie the key concepts derived from model systems to an understanding of human medical genetics, which works well and will be appreciated by students.' The Society for General Microbiology I enjoyed reading this chapter with its wonderful analogies...The author is gifted in writing in such a way that the reader will understand difficult concepts. Helena Kuivaniemi, Center for Molecular Medicine and Genetics, Wayne State University, USA

Philip Meneely is Professor of Biology in the Department of Biology at Haverford College, PA, where he teaches genetics, molecular biology and bioinformatics alongside research exploring the genes involved in meiosis.

I ordered this book as supplemental reading for my graduate genetics class. I could not be more pleased. The prescribed textbook for the class is Hartwell's "From Genes to Genomes" but it really should be "Advanced Genetic Analysis". This has everything we need to know for the class and the case studies embedded in the chapters are about the primary research articles we've been reading in class and provide excellent examples of the conceptual material. I highly recommend it. The language is very easy to read, not dry at all. The illustrations are helpful. Some of the big topics covered include mutagenesis screens, mutant identification and classification, cloning, mapping, using and interpreting microarrays, etc. I am giving it four stars instead of five, because I have only gone through the mutant identification chapter so far. The case studies, descriptions of methods and crosses have all been excellent though.

This book represents a very welcome addition to introduce students (advanced undergraduate and beginning graduate students) to the logic, methods and power of genetic analysis. In some ways this represents almost a re-thinking of the svelte (and correspondingly brief) "Advanced Genetic Analysis: Finding meaning in a Genome by R. Scott Hawley and Michelle Walker (which I also think is a great book). If you are about to start graduate school in a genetics lab (in particular using a model system such as yeast, Arabidopsis, C. elegans, Drosophila or mice, then this will be a welcome book on your bookshelf. I plan to make it essential reading for all incoming grad students in my lab!!!

I'm a genetics major at a prominent university, and I have to say this is the best genetics book I

have come across so far. This is definitely not an introductory book, but the author is able to explain complex methodologies and concepts in a clear and concise manner. The imbedded figures are always easy to understand and very helpful.

Pretty advanced for a basic gen class in undergrad but definitely recommended fr those interested in PhDs or MS in Genetics or a relevant hard science. Great diagrams and covers information that is scarce, even on google...i.e. transposon tagging and novel molecular techniques

My brother liked it a lot

It is a good first step book. Very useful for start in the comprehension in the genome analysis. I think that have a good level!

I used this text for an Advanced Genetics course for upper division undergraduates. It was exactly what I have been looking for. It bridges the gap from the typical Biology Majors' Genetics course to a more applied genome/network oriented approach. The book covers prominent models systems (yeast, worms, flies, mice, and arabidopsis) in a way that shows their relative advantages and disadvantages and how they complement one another. It also covers forward and reverse genetic screening strategies, genetic, molecular, biochemical and bioinformatic methods for the analysis of gene expression and function, suppressor and enhancer screens, and construction of gene networks. I recommend this book for advanced genetics classes for undergraduates who are interested in moving beyond the required genetics course.

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