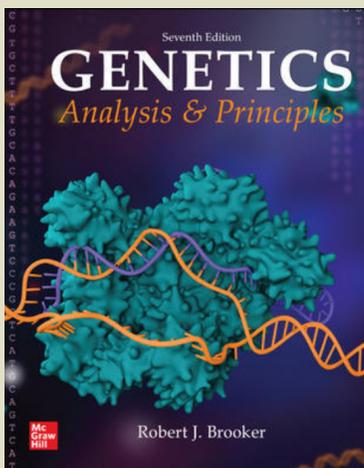


List of Changes



Genetics: Analysis and Principles 7th Edition Robert Brooker

ISBN: 1260240851 / 9781260240856 / © 2021

available in



connect®

MAJOR CONTENT CHANGES IN RECENT EDITIONS

Coverage of the topic of epigenetics was expanded to a whole chapter in the sixth edition, which is Chapter 16. In the seventh edition, this chapter includes a new section that focuses on the structure and function of heterochromatin. A chapter on non-coding RNAs, Chapter 17, was added in the sixth edition. This long-overdue chapter was included in response to a remarkable explosion in our appreciation for the roles of non-coding RNAs in many aspects of molecular biology. Although two new chapters were added in recent editions, the overall page length of the seventh edition is not longer than the fifth edition.

Discussion of the role of the CRISPR-Cas system in providing prokaryotes with a genome defense mechanism has been added in Chapter 17, and its use by researchers to mutate genes is described in Chapter 21.

Due to the expanding material in the area of medical genetics and cancer biology, the chapter on medical genetics and cancer has been split into two chapters in the seventh edition.

The material that was covered in Chapter 20 of the sixth edition has been placed in other chapters. Homologous recombination is now in Chapter 19 and transposition is in Chapter 10.

SEE LIST OF CHANGES ATTACHED.

It All Starts with You >>

McGraw-Hill Connect® is a course management and adaptive learning solution that enhances your unique voice and teaching style. As your partner, we're committed to helping you achieve your course goals and unlock student potential. That's why we've made meaningful updates to this edition.

New In Connect:

SmartBook® 2.0 – Our adaptive reading experience has been made more personal, accessible, productive, and mobile.

Data and Graphing Interactives – This tool allows students to manipulate scientific data to understand relationships, make comparisons, and visualize trends. By providing different types of data analysis, students learn to make predictions and draw conclusions.



Data and Graphing Interactives



Learning that Fits
mheducation.link/smartbook2

Additional Value When You Upgrade

- **NEW!** Free mobile access to SmartBook 2.0 assignments and the digital textbook with the ReadAnywhere app.
- **NEW!** Remoting proctoring and browser-locking capabilities allowing for more control over the integrity of online assessments.
- **NEW!** Ability to create enhanced assignments personalized to each student's needs.
- Accessibility and student data security enhancements.
- More advanced student and class reporting capabilities.
- 99.99% platform uptime

Visit mheducation.com/connect for details.



Changes to Brooker: Genetics: Analysis and Principles, 7e

Examples of Specific Content Changes to Individual Chapters in the Seventh Edition

- Chapter 2, Mendelian Inheritance: The discussion of the chi square test has been revised to better explain the connection to the null hypothesis.
- Chapter 4, Extensions of Mendelian Inheritance: Ever wonder why some breeds of dogs, such as collies, have white undersides with darker fur on their backs? A new subsection explains how this phenomenon is related to events during development that involve the final disposition of melanocytes (see Figure 4.16).
- Chapter 6, Genetic and Linkage Mapping in Eukaryotes: The section on genetic mapping has been revised to emphasize that the pattern of allele linkage is deduced from the true-breeding P generation and that F2 recombinants are produced by a crossover.
- Chapter 7, Genetic Transfer and Mapping in Bacteria: The section on bacterial transduction has been simplified by eliminating the discussion of cotransduction, which is not commonly used.
- Chapter 9, Molecular Structure of DNA and RNA: Based on reviewer feedback, the topic of triplex DNA was removed from this chapter.
- Chapter 10, Molecular Structure of Chromosomes and Transposable Elements: Due to their effects on chromosome structure, transposable elements (discussed in Chapter 20 in the sixth edition) are now covered in this chapter (see Section 10.5). New and revised figures regarding eukaryotic chromatin structure were added (see Figures 10.19, 10.22, and 10.23).
- Chapter 11, DNA Replication: A new model depicting the molecular structure of DNA polymerase has been added (see Figure 11.8b).
- Chapter 12, Gene Transcription and RNA Modification: New information describing how a component of the spliceosome acts as a ribozyme has been added.
- Chapter 14, Gene Regulation in Bacteria: The discussion of the trp operon has been simplified.
- Chapter 15, Gene Regulation in Eukaryotes I: Transcriptional and Translational Regulation: The topic of insulators has been moved to Chapter 16. They are now called “barriers” to heterochromatin formation. Discussion of the potential role of nucleosome-free regions in preventing heterochromatin spreading has been added.
- Chapter 16, Gene Regulation in Eukaryotes II: Epigenetics: A new section entitled “Heterochromatin: Formation, Structure, Formation, and Maintenance” has been added. This section has five new figures (see Figures 16.4 through 16.8). The section entitled “Role of Epigenetics in Cancer” was moved to Chapter 25.
- Chapter 17, Non-coding RNAs: New figures illustrate non-coding RNAs that act as a guide and a decoy (see Figures 17.2 and 17.3). Figure 17.10 was revised to distinguish between pRITS and pRISC, which silence the transcription and translation of transposable elements, respectively.
- Chapter 18, Genetics of Viruses: The information on the origin of HIV and the occurrence of HIV infection worldwide and in the United States has been updated.
- Chapter 19, Gene Mutation, DNA Repair, and Recombination: Figure 19.18, which concerns nucleotide excision repair, has been revised to include the function of UvrD. The section on homologous recombination (in Chapter 20 in the sixth edition) was moved to this chapter.
- Chapter 20, Molecular Technologies: This chapter was Chapter 21 in the sixth edition. The topic of real-time PCR has been divided into smaller subsections for clarity and ease of reading. Section 20.4, formerly called “Gene Mutagenesis” is now called “Gene Editing.”
- Chapter 21, Biotechnology: This chapter was Chapter 22 in the sixth edition. The section entitled “Human Gene Therapy” was moved to the chapter on medical genetics (now Chapter 24).

Changes to Brooker: Genetics: Analysis and Principles, 7e

- Chapter 22, Genomics I: Analysis of DNA: This chapter was Chapter 23 in the sixth edition. The section on physical mapping has been simplified.
- Chapter 23, Genomics II: Functional Genomics, Proteomics, and Bioinformatics: This chapter was Chapter 24 in the sixth edition.
- Chapter 24, Medical Genetics: This chapter was Chapter 25 in the sixth edition. The topic of genome-wide association (GWA) studies was added (see Figure 24.8). The section “Human Gene Therapy” was moved to this chapter. The material on cancer was moved to Chapter 25, which solely focuses on cancer.
- Chapter 25, Genetic Basis of Cancer: This topic is now featured in its own chapter, which includes four separate sections. The last section focuses on the role of epigenetics in cancer.
- Chapter 26, Developmental Genetics: The information on Hox genes in development and on the role of the SRY gene in human sex determination has been updated.
- Chapter 27, Population Genetics: Discussion of the topic of inbreeding has been expanded.
- Chapter 28, Complex and Quantitative Traits: The identification of QTLs is now covered in a separate section.
- Chapter 29, Evolutionary Genetics: The cladistics method for constructing a phylogenetic tree is compared with the UPGMA method.

Affordability & Outcomes

Affordability & Outcomes

- Flexibility! More choice. You decide.
- Multiple options at multiple price points!
- Content options: McGraw-Hill, custom, Open Learning Solutions.
- Format Options: Print, McGraw-Hill eBook, Courseware, bundles.
- Delivery Options: Inclusive Access, rental, purchase.
- 950 Inclusive Access institutional partnerships in 2019.

Visit mheducation.link/realvalue for details.



Support At Every Step

Find all the resources you need for a successful semester in one spot: supportateverystep.com.

Faculty support is critical to the success of implementing and using digital courseware. That's why we teamed up with faculty to create a website dedicated to providing above-and-beyond support. From initial training to implementing new tools to digging into the data, we're here to help.

Let us know how we can partner with you at every step.