

Brief Contents

- 1 Introduction to Genetics 1
- 2 Mitosis and Meiosis 17
- 3 Mendelian Genetics 37
- 4 Modification of Mendelian Ratios 60
- 5 Sex Determination and Sex Chromosomes 92
- 6 Chromosome Mutations: Variation in Number and Arrangement 111
- 7 Linkage and Chromosome Mapping in Eukaryotes 132
- 8 Genetic Analysis and Mapping in Bacteria and Bacteriophages 159
- 9 DNA Structure and Analysis 181
- 10 DNA Replication and Recombination 203
- 11 Chromosome Structure and DNA Sequence Organization 224
- 12 The Genetic Code and Transcription 240
- 13 Translation and Proteins 261
- 14 Gene Mutation, Transposition, and DNA Repair 284
- 15 Regulation of Gene Expression 308
- 16 Cancer and Regulation of the Cell Cycle 334
- 17 Recombinant DNA Technology and Gene Cloning 351
- 18 Genomics, Bioinformatics, and Proteomics 375
- 19 Applications and Ethics of Genetic Engineering and Biotechnology 407
- 20 Developmental Genetics 433
- 21 Genetics and Behavior 450
- 22 Quantitative Genetics and Multifactorial Traits 465
- 23 Population and Evolutionary Genetics 483
- 24 Conservation Genetics 507

APPENDIX A ANSWERS TO SELECTED PROBLEMS A-1

APPENDIX B SELECTED READINGS B-1

GLOSSARY G-1

PHOTO CREDITS C-1

INDEX I-1