

important coverage of how the era of Genomics impacts on society. Unique to this text is Chapter 23—*Chromosome Genetics: Immunoglobulins, Isochores and Chromatid Dynamics*, where these advanced topics are presented. Finally, another addition to this series of texts is the chapter entitled *Conservation Genetics* (Chapter 27). This presentation represents the first coverage of this emerging discipline in any genetics textbook. The role of molecular biology in conservation is discussed.

- **Modern Presentation of Topics**—In addition to the cutting edge topics discussed above, modern coverage is particularly evident in the discussions of recombinant DNA technology (Chapter 16), as well as in the coverage of the organization of repetitive DNA sequences in the human genome (Chapter 4), the TRAP protein that functions during regulation of the tryptophan operon (Chapter 19), and the role of genetics in the origin of cancer (Chapter 22). Coverage of conservation genetics, and in particular, the genetic assessment of diversity in endangered species (Chapter 27), is also at the forefront of genetic studies.
- **A New Art Program**—The design of an entirely new art program will be evident to past users of the alternative edition, *Concepts of Genetics*. To all users, the pedagogic value of the well-designed and beautifully executed figures will become apparent, and constitutes one of the cornerstones of this new text.
- **Excellent Photographs**—A large number of photographs beautifully illustrate and enhance this textbook. Whenever possible, organisms that are subjects of genetic analysis are shown. Often, photographs are present as part of presentations in important figures, e.g., Taylor, Woods, and Hughes autoradiograms showing replication in *Vicia faba*, (Figure 3-5), the electron micrographs directly capturing transcription of rDNA in *Notophthalmus* and transcription and translation in *E. coli* (Figure 5-15), etc.
- **Section Numbers**—All major section titles are numbered making it easy for instructors to assign topics and for students to find topics within chapters.
- **Modern "Genetics, Technology, and Society" Essays**—Short essays that link genetics and society accompany most chapters. The most modern topics pursued include consideration of stem cells, the genetic identification of anthrax strains, the attempts to create HIV vaccines, and emerging societal issues surrounding human sex selection. These are in addition to essays that consider genetically modified foods, completion of the Human Genome Project, and endangered species—the Florida panther, among many others. These may be assigned even if they are not part of the formal lecture coverage.
- **Extensive Problems to Solve**—There are many entries in the "Problems and Discussion Questions" at the end of each chapter from which instructors may choose as student assignments are determined. These problems are written at various levels of difficulty, with those that are most challenging found in the "Extra Spicy Problems" sections. Students also can gain insights into different an-

alytical approaches illustrated in each chapter by utilizing the "Insights and Solutions" section at the conclusion of each chapter (see below).

Emphasis on Concepts

Genetics: A Molecular Perspective emphasizes the conceptual framework of genetics. Our experience with this approach shows that students more easily comprehend and take with them to succeeding courses the most important ideas in genetics as well as an analytic view of biological problems. To aid students in identifying conceptual aspects of a major topic, each chapter begins with a section called "Key Concepts," which outlines the most important ideas about to be presented. Then, each chapter ends with a "Chapter Summary," which enumerates the five to ten key points that have been covered. These two features help to ensure that students focus on concepts and are not distracted by the many, albeit important, details of genetics. Specific examples and carefully designed figures support this approach throughout the book.

Problem Solving and Insights and Solutions

In order to optimize the opportunities for student growth in the important areas of problem solving and analytical thinking, each chapter concludes with an extensive collection of "Problems and Discussion Questions." These represent various levels of difficulty, with the most challenging problems located at the end of each section (the Extra Spicy entries). Brief answers to half the problems are in Appendix C. The Student Handbook is available when faculty wish to expose their students to detailed discussions and answers to all problems and questions.

As an aid to students in their development of analytical thinking skills, the Problems and Discussion Question section of each chapter is preceded by what has become an extremely popular and successful section called "Insights and Solutions." In this section we stress:

- Problem solving
- Quantitative analysis
- Analytical thinking
- Experimental rationale

Problems or questions are posed and detailed solutions or answers are provided. This feature primes students for moving on to the "Problems and Discussion Questions" section that concludes each chapter.

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Tracy Whitford, East Stroudsburg University

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