

PREFACE

This book is aimed at undergraduate biology or science majors, sophomores to seniors, who are not genetics majors. It is intended for a one-semester introductory course for students requiring a knowledge of molecular biology as a basis for the study of other areas of biology. A beginning biology course and a basic organic chemistry course are the only prerequisites.

In the text, molecular genetics is placed within the general framework of metabolism. In this way, the processes and mechanisms of gene function and control are seen as phenomena connected to other cell activities.

The text begins with the structure of genetic material, moves to the function of that material (e.g., expression and regulation of genes), and concludes with the application of the knowledge gained in the study of the first two sections in the relatively new field of genetic engineering, or gene manipulation. In its entirety, then, the text is concerned with the structure, expression, regulation, and manipulation of genetic material, in particular, DNA.

Theoretical considerations and experimental data, which are better left to courses for genetics majors, are kept to a minimum. Instead, the idea is to give the student a frame of reference to either continue the study of molecular biology or genetics or to use the information acquired to further an understanding of other courses. When, however, the experimental evidence is crucial to an understanding of how advances in the field occurred, the experiments are described in some detail (e.g., the

Meselson-Stahl experiments proving the semiconservative model of DNA replication).

No book is the product of a single person's labors. I have had the assistance of numerous reviewers. Their comments and recommendations have been carefully considered, though not always followed. I am, nonetheless, grateful to them.

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