

Preface

Based on exceptional intellectual and experimental achievements of biochemists and structural biologists, biochemical information continues to accumulate at a nearly exponential rate well into the twenty-first century. What becomes obvious is that neither the student nor the instructor can be expected to comprehend this enormous volume of material in a classroom setting, and certainly not in any first course. We have therefore chosen to present those topics and details that we believe are central to contemporary biochemistry and that will remain relevant to the science of biochemistry well into the foreseeable future.

This textbook is aimed at undergraduate chemistry and biochemistry students as well as first-year biochemistry graduate students. Based on lectures given to students with strong chemistry backgrounds at Iowa State University, this book emphasizes metabolism and enzyme reaction mechanisms. By omitting regulatory pathways and such structural details as residue numbers provided in more comprehensive textbooks, “Essentials of Biochemistry” helps students to focus on how enzymes function and how their reactions are studied. Moreover, while contemporary biochemistry includes what is often termed cell biology, many universities (including ours) teach such topics within their biology curriculum, thus eliminating any need to cover them herein in detail.

As the title of the book implies, the text lays the basis for an understanding of the “Essentials of Biochemistry” and is not intended to be an encyclopedia of biochemistry nor a substitute for any of the excellent comprehensive texts currently available. We believe that such an approach benefits those seeking to master biochemistry by relying on what we trust is a well-explained account of its underlying principles.

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