

Preface

The textbook, “Integrated Experiments for Biosciences,” is designed for senior undergraduates and graduate students. On the one hand, it plays an important role in connecting what students have previously learned with new knowledge. On the other, it is a “training” for undergraduate students before completing their graduation thesis. The textbook enables students to develop comprehensive and high-quality practical skills for acquiring biological knowledge and solving problems independently while completing integrated experiments, and thus improves the ability of students to develop good habits of deeper learning and enterprise learning.

The academic objective of the textbook is to enable students to understand experimental principles and acquire key biological skills. The “ability” objective is to enable students to acquire the ability to ask practical questions about life sciences, analyze and evaluate results, solve complex problems, and learn independently and holistically. The emotional objective is to teach students about teamwork, caring for others, and to abide by academic, ethical, and societal norms.

According to the three objectives of the textbook, each chapter is divided into two parts: learning and application. The learning section focuses on the biological dogma of DNA-RNA-Protein-Cell-Life, telling the stories of genes, proteins, cells, and life. In the application section, vivid cases are set up for students to understand the academic history and frontiers of biology, and the value of learning how biological principles and technologies are applied.

This textbook is an important learning tool to guide undergraduate students to start scientific research. The textbook is written in English, allowing undergraduates to become familiar with English academic literature and protocols from an early stage. We expect students to communicate with scholars from around the world and stand in the international academic stage, showcasing scientific contributions made by Chinese scientists to mankind.



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