

Preface

The exercises in this book were used to teach an upper-division biochemical laboratory course for undergraduate majors in the Department of Chemistry and Biochemistry at the University of California San Diego. Initially, the course focused on the purification and characterization of mammalian lactate dehydrogenase. Later on, two new sets of exercises were created that established a new theme: the comparison of enzymes, across a wide phylogenetic range, catalyzing the oxidation and reduction of cosubstrates with the coenzymes NADH and NADPH. Exercises examining a bacterial FMN reductase and the ferredoxin-NADP⁺ reductase from a plant expanded the scope of the course. In addition, a section on experimental design has been included. Hypotheses regarding aspects of the enzymes mentioned above or related enzymes are given. Hints are provided to help students design appropriate procedures, perform experiments, and interpret data.