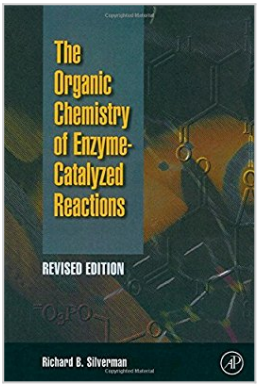


# Organic Chemistry of Enzyme-Catalyzed Reactions, Revised Edition, Second Edition

*By Richard B. Silverman Ph.D Organic Chemistry*



**Organic Chemistry of Enzyme-Catalyzed Reactions, Revised Edition, Second Edition** By Richard B. Silverman Ph.D Organic Chemistry

*The Organic Chemistry of Enzyme-Catalyzed Reactions* is not a book on enzymes, but rather a book on the general mechanisms involved in chemical reactions involving enzymes. An enzyme is a protein molecule in a plant or animal that causes specific reactions without itself being permanently altered or destroyed.

This is a revised edition of a very successful book, which appeals to both academic and industrial markets.

- Illustrates the organic mechanism associated with each enzyme-catalyzed reaction
- Makes the connection between organic reaction mechanisms and enzyme mechanisms
- Compiles the latest information about molecular mechanisms of enzyme reactions
- Accompanied by clearly drawn structures, schemes, and figures
- Includes an extensive bibliography on enzyme mechanisms covering the last 30 years
- Explains how enzymes can accelerate the rates of chemical reactions with high specificity
- Provides approaches to the design of inhibitors of enzyme-catalyzed reactions
- Categorizes the cofactors that are appropriate for catalyzing different classes of reactions
- Shows how chemical enzyme models are used for mechanistic studies
- Describes catalytic antibody design and mechanism
- Includes problem sets and solutions for each chapter
- Written in an informal and didactic style

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## Editorial Review

Review
Praise for the First Edition:
"Silverman's newest contribution will serve as an outstanding text and reference on the reaction mechanisms of enzymes. ... His treatment of the topic should also appeal to a broad range of organic, medicinal, and biological chemists who desire an up-to-date and succinct overview of the field. Silverman should be congratulated ... should quickly become the standard for mechanistic studies." **--JOURNAL OF THE AMERICAN CHEMICAL SOCIETY**

From the Publisher
KEY FEATURES

Shows how enzyme-catalyzed reactions are simply efficient organic reactions Emphasizes the connection between organic reaction mechanisms and enzyme mechanisms Explains how enzymes can accelerate the rates of chemical reactions with high specificity Uses selected enzymes to demonstrate general mechanisms of enzyme-catalyzed reactions Compiles the latest information about molecular mechanisms of enzyme reactions Illustrated with a vast array of clearly drawn structures, schemes, and figures Includes an extensive bibliography on enzyme mechanisms Describes approaches to the design of enzyme inhibitors Covers catalytic antibody design and mechanisms Provides problem sets and solutions for each chapter

From the Back Cover
BACK COVER COPY
This unique text illuminates the "black box" of enzyme-catalyzed reactions by showing how enzymes are simply highly efficient organic chemists. Illustrated with a vast number of computer-drawn structures and reaction schemes, each chapter describes the organic reaction mechanisms that enzymes use to catalyze a particular family of organic transformations. Rather than bogging the reader down with all of the enzymes that catalyze a transformation, Professor Silverman selects one or two examples of enzymes that catalyze the particular chemistry. Chemical model studies used to elucidate enzyme mechanisms are discussed, along with the design of haptens, the generation of catalytic antibodies ("designer enzymes"), and the design and mechanism of enzyme inhibitors. An extensive bibliography annotates the coverage of numerous experiments that aid in elucidating of the enzyme mechanisms. Problem sets and solutions are provided for each chapter. Intended as a textbook for courses in enzymology and bioorganic and medicinal chemistry, The Organic Chemistry of Enzyme-Catalyzed Reactions will also serve as an essential reference for chemists and biochemists working with enzymes in the chemical, pharmaceutical, agricultural, and biotechnology industries.

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