

A TEXTBOOK OF
**MODERN
TOXICOLOGY**
ERNEST HODGSON • PATRICIA E. LEVI



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Toxicology Program
North Carolina State University
Raleigh, North Carolina



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PREFACE

Although there are some excellent reference works in general toxicology, such as Casarett and Doull's *Toxicology* (edited by Doull, Klaassen, and Amdur) and *Principles and Methods in Toxicology* (edited by Hayes), there is still a scarcity of textbooks designed for student and teacher to use in the classroom setting. In preparing the current volume we have attempted to fill that particular niche. At North Carolina State University we have taught a course in general toxicology that is open to graduate students as well as undergraduates at the senior level. In our opinion, toxicology is, in most instances, not a suitable course for an undergraduate, as some knowledge of chemistry, biochemistry, and physiology is an essential prerequisite. However, with proper guidance, all of the material in the present text is appropriate for biology, chemistry, or biochemistry majors in their senior year. For graduate students it is intended to lay the foundation for subsequent, specialized courses in toxicology, such as those in biochemical toxicology, chemical carcinogenesis, regulatory toxicology, etc.

We share the view that an introductory text must present all of the necessary fundamental information, but in as uncomplicated a manner as possible. To enhance readability, references have been deleted from the text. While this may result in a text which appears simple to the advanced student, or one which is unsuitable as a reference work, a list of suggested further reading at the end of each chapter will permit students to extend their knowledge in any area of interest.

Clearly the amount of material, and the detail with which some of it is presented, is more than needed for the average general toxicology course. This is done, however, to permit each instructor the opportunity to select and emphasize those areas of toxicology that they feel need additional emphasis. The obvious biochemical bias of some sections is deliberate and based on the philosophy that progress in toxicology depends most on further understanding of the fundamental basis of toxic action at the cellular and molecular levels.

The efforts of Karen Clark, who prepared the manuscript through all its many revisions, are greatly appreciated, as are those of Drs. Frank E. Guthrie and Ross Leidy for their contributions to Chapters 2, 5, and 9. Thanks are due also to many reviewers, but particularly to the students of the 1984 and 1985 classes in general toxicology at NCSU. Finally we thank Yale Altman and others at Elsevier whose fine work and unfailing good humor made the final stages of the project possible.

Ernest Hodgson
Patricia E. Levi

Raleigh, North Carolina

Although there are some excellent reference works in general toxicology, such as Casarett and Doull's *Toxicology* (edited by Doull, Klassen and Amdur) and *Principles and Methods in Toxicology* (edited by Hayes), there is still a serious need for a text designed for the student and teacher in the classroom setting. In preparing the current volume we have attempted to fill that particular niche. At North Carolina State University we have taught a course in general toxicology that is open to graduate students as well as undergraduates at the senior level. In our opinion, toxicology is, in most instances, not a suitable course for an undergraduate as some knowledge of chemistry, biochemistry, and physiology is an essential prerequisite. However, with proper guidance, all of the material in the present text is appropriate for biology, chemistry, or biochemistry majors in their senior year. For graduate students it is intended to lay the foundation for subsequent specialized courses in toxicology such as those in biochemical toxicology, clinical toxicology, regulatory toxicology, etc.

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