

General Chemistry

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Preface

Chemistry is the science of matter and the changes it undergoes. The science of chemistry is so broad that no one can be expert in all of its aspects. You must not assume that in your first course in chemistry you'll learn about the chemistry of the complex processes. Students must first learn the chemistry of simpler substances. A music student must first learn to play simple pieces. It is only after months or years of practice that an individual can play the music of the masters. So it is with chemistry. You must first learn the fundamental principles and something about simple materials. A good understanding of the behavior of such materials will then allow you to understand the chemical behavior of more complex materials.

Chemistry has often been called the central science because a basic knowledge of chemistry is essential for the study of biology, physics, geology, ecology, and many other subjects. You may be wondering whether you should study chemistry at all. A knowledge of chemistry is useful, no matter what profession you follow. If you decide to become a mechanical engineer, you'll need to know something about fuels and alloys and corrosion; if a civil engineer, you must have a knowledge of cement, plaster, steel, and other building materials; if an electrical engineer, you'll need a knowledge of how a battery produces electrical energy, and the changes that take place in it when it is recharged, as well as a knowledge of transistors and lasers. If you decide to go into agriculture, you'll need to know about fertilizers and pesticides, as well as animal nutrition. Even if you enter some profession that seems to have no connection with chemistry, such as law, you'll find knowledge of chemistry is very useful.

We believe that students benefit most of all from a book which leads from familiar concepts to unfamiliar ones, not just encouraging them to know but to understand and to understand why. We have similarly aimed to avoid exhausting principles and rules to explain things which are better understood in terms of fundamental concepts. We hope that you will enjoy your study of chemistry. We have found it to be a fascinating subject, because of its history, the beauty of its logic, and its multitude of applications.

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