CHM 2046 -- Chemistry Fundamentals II

Objectives

1. To help students further their understanding of the fundamental concepts of modern chemistry, building upon topics covered in CHM 2045;
2. To help students learn to apply these concepts for solving chemical problems.

Instructor

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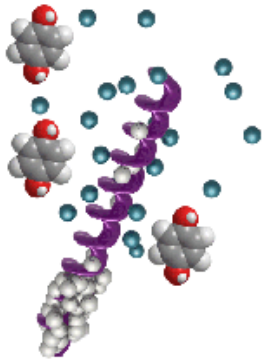
Text

Kotz, J. C.; Treichel, P., *Chemistry and Chemical Reactivity*, 5th edn., Saunders College Publishing: Philadelphia, 2003

Topics

Intermolecular forces, liquids, and solids (Ch. 13)
Solutions and their behavior (Ch. 14)
Chemical kinetics (Ch. 15)
Chemical equilibria (Ch. 16)
Chemistry of acids and bases (Ch. 17)
Aqueous equilibria (buffers, titrations, Ch. 18)
Entropy and free energy (Ch. 19)
Electron transfer reactions (Ch. 20)
Nuclear chemistry (Ch. 23)
Main group chemistry (topics throughout Chs. 13-20)



Overview

The Chemistry Fundamentals 2045/2046 series is intended to provide science students with a solid understanding of the foundation concepts in chemistry. Chemistry is often referred to as the "central science" because its fundamentals must be understood for detailed study of nearly all other physical and engineering sciences. However, chemistry is also relevant for non-scientists because it provides explanations for so many things we encounter (and often take for granted) in everyday life. Stop to think for a moment about the following. What are polymers, and how are they made? Why does incorporating carbon into iron strengthen the metal? Why are the sky and the oceans blue? (Same color, different reasons!) Why is grass green, or blood red? How do bio-molecules, like DNA, make life possible? In this course we will gain exposure to important concepts that provide a starting point for answering these and many other questions about our world, and we will lay the foundation for further study of chemistry and other sciences. We will also discover that chemistry is a dynamic discipline that is ever growing and changing, as people attempt through scientific research to develop a more complete description of our physical universe. The honors section of this course (CHM 2046H) is identical in content, but enrollment is limited to 24 students and greater emphasis is placed on classroom discussion and participation.