



Organic Chemistry I (202-BZF-05) and General Biology II (101-BZE-05) – Making the Connection

Do you remember Lewis Structures, free energy and hydrogen-bonding from your General Chemistry class? Wouldn't it be great how these topics that you are already familiar with from your Chemistry course can be applied to learn functions of living organisms in your biology course?

Organic Chemistry is the study of molecules that mainly consist of carbon, hydrogen, nitrogen and oxygen atoms. These molecules, generally referred to as "Organic Molecules", are essential building blocks of macromolecules such as proteins, enzymes and DNA, which form the basic currency of life on Earth.

All biological processes are rooted in interweaving of numerous chemical reactions by organic molecules. An example of this is the notion of *Chirality* (or handedness), a unique property of organic molecules that are derived from the molecules' three-dimensional structural arrangements. Chirality serves as the principal mechanism in biological systems; for example, an enzyme and a substrate involved in cellular respiration system trigger the requisite physiological function, only when the enzyme molecule having the "right shape" is able to fit into the active site.

Biology speaks Chemistry. Organic Chemistry is the alphabet of letters that make up the sentences in General Biology II. However, this (*obvious*) connection between two courses has not been always clear to you. In this paired course, we aim to help you learn Chemistry and Biology as complementary subjects that together make a single unit, and how this unified knowledge can be applied to understand real-world problems such as climate change, food production and the development of new medicines.