

Cell Structure and Function (CSF)

Course Objectives

1. To differentiate at the structural (light microscopy) and functional level the cells and extracellular matrices that comprise the five basic tissue types and how these are organized into organs.
2. To understand how proteins are structured and function to perform essential tasks in the human body such as enzyme catalysis, membrane transport, oxygen and metabolite transport in blood, information transfer, and the formation of cell membranes and the extracellular matrix.
3. To describe the pathways by which basic food molecules (proteins, carbohydrates, and lipids) are metabolized and either assimilated into structural components of the body, utilized for energy production, or eliminated as waste. Also to describe how the metabolism of these is regulated at the enzyme and hormonal levels.
4. To understand the nature of energy utilization in the human body: how it is generated, utilized, and its formation regulated.
5. To describe the nature of the gene: how it is expressed and passed from one generation to the next, and to describe the signals inherent in the human genome that provide targeting, lifespan, and expression information.
6. To understand methodologies to diagnose and treat human diseases that are based upon DNA and protein chemistry.