

## **Principles of Biology**

Course code: BIO 1100

Total contact hours: 60 hours

Pre-requisite: None.

### **Course Overview**

In the Principles of Biology course, students will embark on a comprehensive exploration of the fundamental concepts that underlie the study of life.

Throughout the semester, emphasis will be placed on developing a robust understanding of the core themes of biology, enabling students to identify and analyze real-world examples that exemplify these themes. An integral component of the course involves critical thinking skills, particularly in the evaluation of scientific studies related to vaccines, pseudoscience, and other contemporary issues. Students will learn to discern the soundness of study designs, facilitating a nuanced understanding of the scientific method.

Additionally, the course will delve into the hierarchical organization of life, elucidating the emergence of new properties at each level, from molecular structures to complex ecosystems.

Practical skills will be developed as students learn to draw conclusions from data, construct graphs, and create models based on provided information. The intricate web of life processes, from energy transformation in animals and plants to the flow of information in signaling pathways and DNA-to-protein synthesis, will be explored in detail. The course will culminate in a comprehensive understanding of evolution and adaptation, examining how life on Earth has evolved and elucidating the ways in which structural and functional adaptations contribute to survival and reproduction at both cellular and organismal levels.