Biology 1 (Honors)

Updated May 2020

Course Description:
Biology is devoted to the study of living things and their processes. Throughout the year, this course provides an opportunity for students to develop scientific process skills, laboratory techniques, and an understanding of the fundamental principles of living organisms. Students will explore biological science as a process, cell structure and function, genetics and heredity, evolution and classification, and the diversity of living organisms and their ecological roles. Honors Biology is a faster-paced, more rigorous, and more in-depth version of sophomore Biology. This course will provide students with an advanced understanding of biological concepts and prepare them for the rigor they will face in upper-level science courses such as Bio 2, Chemistry, and Anatomy.

Big Ideas:

Big Idea 1: The process of evolution drives the diversity and unity of life.
Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, reproduce, and maintain homeostasis.
Big Idea 3: Living systems store, receive, transmit, and respond to information essential to life processes.
Big Idea 4: Biological systems interact, and these interactions possess complex properties.

Essential Learning Objectives:

ELO #	Essential Learner Outcome Description	Standards
1	Students will develop and practice skills related to solving problems, experimentation, defending data, forming conclusions, and become acquainted with devices used in biology laboratories.	IN1. A. Bio- a,b,c,d,e,f,g B. Bio- a,b,c,d,e,f C. Bio- a,b,c,d D. Bio- a,b,c ST1. B. Bio- a ST2. A. Bio- a,b B. Bio a,b ST3. B. Bio- a,b,c C. Bio- a,b,c D. Bio- a,b
2	Students will understand the atomic and chemical processes necessary for life.	ME 1.I. Bio - a
3	Students will investigate the features of the cell membrane, as well as the structure and functions of internal organelles of both prokaryotic and eukaryotic cells.	LO1. B. Bio- a,b C. Bio- a,b F. Bio- a,b,c
4	Students will explore and explain the relationship between the reactions of photosynthesis and cellular respiration.	LO2. A. Bio- a, b,c B. Bio- a,b D. Bio- a,b,c,d
5	Students will understand how DNA is synthesized and used to make proteins through the processes of replication, transcription, and translation.	LO2. E. Bio- a,b LO3. B. Bio- a,b,c,d,e
6	Students will understand how cells reproduce through the processes of mitosis and meiosis.	LO3. A. Bio- a C. Bio- a,b,c,d D. Bio- a,b,c
7	Students will understand the basic principles of inheritance at the molecular, cellular, and organismal levels.	LO3. E. Bio- a,b,c
8	Students will understand that the diversity of life emerges over time by processes of mutation, selection, and genetic change.	LO1. E. Bio- a,b EC3. A. Bio-a,b B. Bio- a,b C. Bio- a,b,c,d
9	Students will explain how energy flows through an ecosystem and its relationship in the evolution of a population.	ME2. F. Bio-a EC1. A. Bio- a,b,c B. Bio- a,b C. Bio- a,b D. Bio- a,b EC2 A. Bio- a,b,c B. Bio- a,b