SANTA ANA COLLEGE

Student Learning Outcomes

Biology SLOs

Biology – AA

1. Apply scientific methodology and reasoning through experimentation, proper lab technique, observation, and review of scientific literature.

2. Describe the characteristics of major taxa, and compare and contrast their anatomical, physiological, and life-history characteristics.

3. Describe the mechanisms of evolution, evolution's relationship to the diversity of life and organization of taxa.

4. Evaluate ecological relationships at the population, community, and ecosystem level.

5. Identify and describe cell structures and processes including the flow of genetic information, genetic expression, and both classical and molecular genetics and inheritance.

Botany – AA

1. Describe the mechanisms of evolution, evolution's relationship to the diversity of life and organization of taxa.

2. Apply scientific methodology and reasoning through development of hypotheses, testing of those hypotheses through experimentation, and analysis of data in the format of a scientific paper and poster presentation.

3. Identify and describe cell structures and the flow of genetic information and expression, and inheritance.

4. Describe the characteristics of major plant taxa and compare and contrast the anatomical and physiological features of the major taxa.

5. Describe and evaluate ecological relationships at the population, community, and ecosystem level.

6. Describe common adaptations plants have evolved to survive in the desert and chaparral plant communities, based on observations on field trips,

7. Describe nutrient processing and energy flow in plants at the cellular, individual, and ecosystem level through the processes of photosynthesis and cellular respiration.

Microbiology – AA

1. Explain the mechanisms of evolution, evolution's relationship to the diversity of life and organization of taxa.

2. Utilize the scientific methodology and reasoning through development of hypotheses, testing of those hypotheses through experimentation, and analysis of data in the format of a scientific paper and poster presentation.

3. Describe cell structures and the flow of genetic information and expression, and inheritance.

4. Describe the characteristics of major taxa and compare and contrast the anatomical and physiological features of the major taxa.

5. Evaluate ecological relationships at the population, community, and ecosystem level.

6. Apply laboratory skills and techniques related to the isolation, staining, identification, and control of microorganisms.

7. Explain the relationship between the molecular mechanisms of microbial pathogenesis and the immune system.

Zoology – AA

1. Evaluate the evidence of evolution and its mechanisms and how this explains the unity and the diversity of organisms on this planet.

2. Interpret a phylogenetic tree with regards to evolutionary relationships within the animal kingdom and be able compare and contrast the characteristics of major taxa.

3. Explain how animals function, from gene to organ-systems, and provide examples from major taxa.

4. Discuss the major skeletal and physiological adaptions for the transition to land.

5. Identify and explain the function of major structures in a given dissected organism.

BIOL100 – Natural History of Southern California

1. Identify major biomes and communities observed in course through photographs, written description, or field observation.
2. Describe the major physical factors of biomes and communities and the relationships between the biological and physical factors observed in course through photographs, written description, or field observation.

Source: Cerritos College