

# NC 218A: BIOLOGY A

## Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2021
Credits:	0
Total Contact Hours:	60
Lecture Hours :	60
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	120
Prerequisite:	Placement by a high school counselor.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Non-Credit Course

## Catalog Course Description

This course deals with the study of living things following the California State Standards for Biology. It emphasizes modern technological and practical topics such as ecology, genetics, human structure, and function. Hands-on laboratory experiences are essential to each topic. The course format will include activity-based investigations with hands-on activities and concepts, and applications compliant with the adopted California State Standards to meet the minimum course requirements for high school graduation. 60 lecture hours.

## Course Objectives

- Describe an ecosystem.
- Explain how the internal environment of the human body remains relatively stable despite changes in the outside environment.
- Explain how organisms combat disease.
- Explore the interconnectedness between organisms.
- Recognize the steps needed for scientific progress to occur.
- Explore the fundamental life processes of plants and animals.
- Identify how mutation and sexual reproduction lead to genetic variation in a population.
- Describe how a multicellular organism develops from a single zygote.
- Demonstrate an understanding of DNA sequencing and how genes determine the characteristics of an organism.
- Identify the genetic composition of cells.
- Explore what factors determine the stability or instability of an allele.
- Describe the events that occur during the evolution process.
- Demonstrate an understanding of the anatomical structures of man, including the physiology of the digestive, circulatory, respiratory, excretory, nervous and reproductive systems.

## Major Course Content

### 1. The Web of Life

- Interactions Among Living Things
- Matter and Energy – The Foundation of Life
- Studying the Living World

### 2. Populations

- Individuals, Populations, and Environment
- Carrying Capacity
- Human Populations

### 3. Communities and Ecosystems

- Life in a Community
- Ecosystem Structure
- Ecosystem Stability and Human Influences

### 4. Matter and Energy in the Web of Life

- Matter and Energy
- Energy for Life
- Life is Based on Carbon  
Carbon Cycling

### 5. The Cell

- Cells Are the Units of Life
- Cell Structure
- Cell Functions
- Cell Division

### 6. Continuity through Reproduction

- Reproduction
- Formation of Reproductive Cells
- The Human Reproductive System

### 7. Continuity through Development

- Regulated Development
- Animal Development
- Cancer

### 8. Heredity and Genetic Variation

- The Hereditary Role of Genetic Material
- Patterns of Inheritance
- Genes and Chromosomes
- Gene Expression
- Biotechnology

### 9. Evolution: Patterns and Diversity

- Diversity, Variation, and Evolution
- Evolution and Natural Selection
- Evolution and Genetics

### 10. Ordering Life in the Biosphere

- Biological Classification
- The Kingdoms of Organisms
- The Origin of Life

### 11. Prokaryotes and Viruses

- Prokaryotes
- Disease
- Sexually Transmitted Diseases

### 12. Eukaryotes: Protists and Fungi

- Autotrophic Protists
- Protozoa: Animal-Like Protists
- Fungi
- Fungi in a Community

### 13. Eukaryotes: Plants

- The Evolution of Land Plants
- Bryophytes and Seedless Vascular Plants
- Seed Plants

### 14. Eukaryotes: Animals

- a. The Animal Way of Life
  - b. Diversity and Adaptation in Animals
  - c. Life Functions in Animals
15. **The Human Animal: Food and Energy**
- a. Ingestion and Digestion
  - b. Cellular Respiration
  - c. Nutrition
16. **The Human Animal: Maintenance of Internal Environment**
- a. Circulation
  - b. Immunity
  - c. Respiration and Excretion
  - d. Temperature Regulation
17. **The Human Animal: Coordination**
- a. The Muscular System
  - b. The Nervous System
  - c. The Endocrine System
  - d. Stress, Drugs, and the Human Body

## **Suggested Reading Other Than Required Textbook**

Instructor supplied material

## **Examples of Required Writing Assignments**

Lab reports

## **Examples of Outside Assignments**

Daily homework and answer review questions

## **Instruction Type(s)**

Lecture, Online Education Lecture