

Matched Against: State Frameworks
State: X AP: _____
Articulation Depart. Chairs: X
High School Curric. Meeting: X
Board Approval: 3-21-2000
Review Cycle: 3/2000
Sites taught: Golden West, Redwood, Mt. Whitney

Visalia Unified School District Course Outline

Course Title: Anatomy & Physiology (P), Anatomy & Physiology (HCA)
Grade Level: 10 -12
Elective/Required: Elective
Length/Credits: One year/ 10 credits
Prerequisites: Chemistry (or concurrent) and Biology
Course Number & CBEDS Codes: 4023, 4511 / 2604
Replaces: None

I. Course Description

This is a second year, advanced course for the college preparatory student who wishes to acquire a greater breadth and depth of knowledge of the principles of biology with an emphasis of anatomy and physiology. This course is designed for students who may be interested in a career in the health related fields. Homework and laboratory work are an important part of the curriculum.

II. Instructional Materials

Required Text: Essentials of Human Anatomy and Physiology, John W. Hole, 6th edition, 1986, William C. Brown Publishers. ISBN: 0-697-00778-2

Supplementary Texts:
None

III. Course Outline

- Course will cover the following topics
- A. Levels of Organization (5-8 weeks)
 - 1. Cells
 - 2. Tissues
 - 3. Body Organization
 - 4. Metabolism

- B. Support / Movement (4-7 weeks)
 - 1. Skeletal System
 - 2. Muscular System
- C. Processing and Transporting (5-9 weeks)
 - 1. Digestion and Nutrition
 - 2. Cellular Respiration
 - 4. Blood and Cardiovascular
 - 5. Urinary
- D. Coordination and Control of the Body (5-9 weeks)
 - 1. Nerves and Brain
 - 2. Senses
 - 3. Endocrine
 - 4. Human Reproduction
 - 5. Human Genetics
 - a. Patterns of inheritance
 - b. Genes
 - c. Recombinant DNA
- E. Mammal Dissection (3-8 weeks)
 - 1. All Major Systems Reviewed/Studied
 - a. Cat Dissection

Levels of Organization

- A. To describe the various levels of structural organization within the human body.
- B. To recognize basic directional terms used in anatomy and physiology.
- C. To identify the various body cavities.
- D. To list body systems.
- E. To identify basic cellular organization.
- F. To list the general energy changes in cellular metabolism.
- G. To differentiate between the various kinds of tissues.

Support / Movement

- A. To list functions of the human skeleton.
- B. To identify the structural parts of a typical long bone.
- C. To identify the types of joints and give examples of each.
- D. To list the types of freely moveable joints and describe the action of each.
- E. To identify the three types of muscular tissues (striated, smooth, and cardiac) and describe the general characteristics of each.
- F. To list the major parts of the skeletal muscle both at the macroscopic and microscopic levels.
- G. To explain the mechanism of muscle fiber contraction and to explain how energy is supplied.
- H. To locate superficial skeletal muscles and relate them to the type of movement they produce.
- I. Processing and Transporting

- J. To identify the nutrients required for metabolic activity.
- K. To describe the function of enzymes in the human body.
- L. To identify the parts of the digestive system.
- M. To identify the components and function of various digestive juices.
- N. To explain the mechanism by which secretions are regulated.
- O. To describe the movements of the digestive system to aid digestion
- P. To explain the mechanism and factors controlling peristalsis.
- Q. To show the relationships of the structure in the respiratory organs to the function of the air-conducting passages.
- R. To explain the mechanism of air movements during inspiration and expiration.
- S. To compare the composition of respired air and alveolar air.
- T. To define the differences between internal and external respiration.
- U. To explain the mechanisms by which the red blood cells facilitate CO₂ transport and O₂ delivery to the body tissues
- V. To describe the identifying features of erythrocytes and note their functions.
- W. To identify the various types of leukocytes and the role they play in the body.
- X. To list each of the components found in blood plasma.
- Y. To distinguish between blood types and identify blood groups.
- Z. To understand the major functions of the heart.
- AA. To describe the path of blood through the heart, naming the various chambers valves, and connecting vessels.
- BB. To explain the cardiac cycle and the mechanism of the conducting system.
- CC. To compare the structure and function of each of the major blood vessels.
- DD. To describe the principal functions of the lymph system.
- EE. To describe the anatomy of the kidney.
- FF. To list the structure of the nephron and relate each of the parts with its function in the kidney.
- GG. To identify the mechanisms that control the filtration in the kidney.

Coordination and Control of the Body

- A. To identify the parts of the human brain and their function.
- B. To distinguish between the motor, sensory, and associative areas of cortex.
- C. To name the major parts of the peripheral nervous system.
- D. To identify the organs of the eye and describe the function of each
- E. To summarize the way in which light waves passing through various structures of the eye are converted into nerve impulses.
- F. To understand the structure and function of the different divisions of the ear.
- G. To trace the path of sound waves through the organs of the ear to the

brain.

- H. To identify the primary functions of the major endocrine glands.
- I. To describe the physiological effects of hormones on target cells.
- J. To identify the structure of both the male and female reproduction systems.
- K. To explain the functions of the reproductive organs of both sexes.
- L. To list the changes that occur during the ovarian and menstrual cycles.
- M. To describe the processes involved in the development of the fetus.
- N. To explain the chromosomal basis of sex determination and sex linked traits.
- O. To explain the Mendelian principles of inheritance in humans.
- P. To explain the basis for mutations and their consequences.

IV. Expectations for Student Learning

Students will gain an understanding of:

1. advanced concepts and principles of biology.
2. fundamental principles of human anatomy and physiology.
3. critical thinking skills used in solving problems in biology
4. study skills and techniques to effectively work independently and in groups.

V. Instructional Methods

Lecture
Class Discussion
Laboratory Work
Scientifically annotated written work
Cooperative Learning
Current Readings and Audio-visual
Computerized Instruction

VI. Assessment and Evaluations

Homework
Chapter and Unit Exams and Quizzes
Laboratory Reports and Drawings
Class Participation
Projects, Term Papers, Essays

VII. Grading Policy

100 - 90% = A
89 - 80% = B
79 - 70% = C
69 - 60% = D
below 60% = F