"D" REQUIREMENT ELECTIVES

PHYSIOLOGY AB
Annual Course—Grades 11–12
Prerequisite: Biology AB or Integrated/Coordinated Science 1AB & 2AB and Algebra 1AB or equivalent. Chemistry AB is recommended. All students in Grades 9-11 must have concurrent enrollment in a science course that is assessed by the California State Contents Standards Test to participate in this science elective.

36-10-01 PHYSIO A
36-10-02 PHYSIO B

Course Description
The purpose of this academic course is to study the structure and function of the human body. Laboratory investigations are designed to illustrate how the body systems maintain a homeostatic internal environment. Active student participation in laboratory investigations and the development of critical-thinking skills are essential. In addition, research into professional opportunities in the health-related sciences stresses the importance of the study of physiology. **Physiology AB meets one year of the University of California *'d'* entrance requirement for laboratory science.**

Instructional Units and Pacing Plans

INSTRUCTIONAL UNITS	*SUGGESTED WEEKS	
Structural Organization of the Human Body	3	3
The Living Cell	4	4
Skeletal and Muscular Systems	4	4
Circulatory System	4	4
Respiratory System	2	3
Nutrition and Digestive System	4	5
Urinary System	1	2
Reproductive System	2	3
Nervous System	4	5
Endocrine System	4	5
Total	***32 year-round**	***38 traditional**

*Suggested weeks are to be used as an estimate only. Pacing will be determined by manner of which you are embedding the State Content Standards and must be reflective of integrating Literacy and Mathematics Initiatives

Representative Performance Outcomes and Skills
In accordance with their individual capacity, students will grow in the ability to:

- Demonstrate process skills of scientific thinking: observing, communicating, comparing, ordering, categorizing, relating, inferring, and applying.
- Demonstrate skills in the areas of speaking, listening, writing, reading, graphing, mapping skills, and mathematics.
- Handle safely the equipment and materials common to chemistry laboratory.
- Evaluate the contributions of science and technology and their relevance to improving our daily lives in preparation for the future.

- Establish the relevance of science and its applications to careers and real-life situations.
- Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests collect data, analyze relationships, and display data.*
- Identify and communicate sources of unavoidable experimental error.*
- Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.*
- Formulate explanations by using logic and evidence.*
- Solve scientific problems by using quadratic equations and simple trigonometric, exponential, and logarithmic functions.*
- Distinguish between hypothesis and theory as scientific terms.*
- Recognize the usefulness and limitations of models and theories as scientific representations of reality.*
- Read and interpret topographic and geologic maps.*
- Analyze the locations, sequences, or time intervals that are characteristic of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem).*
- Recognize the issues of statistical variability and the need for controlled tests.*
- Recognize the cumulative nature of scientific evidence.*
- Analyze situations and solve problems that require combining and applying concepts from more than one area of science.*
- Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.*
- Know that when an observation does not agree with an accepted scientific theory, the observation is sometimes mistaken or fraudulent (e.g., the Piltdown Man fossil or unidentified flying objects) and that the theory is sometimes wrong (e.g., the Ptolemaic model of the movement of the Sun, Moon, and planets).*
- Investigate a societal issue by researching literature, analyzing data and communicating findings and discuss possible future outcomes.
- Demonstrate interconnections between the many disciplines of science.
- Demonstrate the interdisciplinary connections between science and other curricular fields.

Assessments

Instruction in our district is assessment-driven. The Framework states "that effective science programs include continual assessment of student's knowledge and understanding, with appropriate adjustments being made during the academic year (p.11)."[1] Assessments can be on demand or over a long period of time. The District Periodic Assessments and STAR State Testing play a significant role in Student Assessments.

The chart below, adapted from *A Guide for Teaching and Learning*, NRC (2000), gives some examples of on demand and over time assessment.

On Demand →			Over Time
answering questions multiple choice true false matching Periodic Assessments California Standards Tests	constructed response, essays	investigations, immersion projects research reports	portfolios, journals lab notebooks projects

Chart 1 - Assessment Examples

Texts/Materials

- *Science Framework for California Public Schools*
- Authorized Textbooks and ancillary materials:
    - EMC/Paradigm, *Applied Anatomy and Physiology: A Case Study Approach*, Shmaefsky 2007
    - Pearson/Prentice Hall, *Essentials of Human Anatomy & Physiology*, 8th Ed. Marieb 2006
    - Pearson/Prentice Hall, *Essentials of Anatomy & Physiology*, 4th Ed. Martini, Bartholomew 2007
- *Science Safety Handbook for California Public Schools*
- Appropriate science laboratory materials