AP BIOLOGY
Course Syllabus

Course Number: SCMA-0028
OHLAP Credit: Yes

OCAS Code: 5035 AP Biology
Course Length: 120 Hours

Career Cluster: Science, Technology, Engineering and Mathematics
Career Pathway: Engineering and Technology
Career Major(s): Pre-Engineering Aerospace, Pre-Engineering Civil & Architecture, Pre-Engineering Mechanical, PLTW Biomedical Science and Medicine, Biotechnology

Pre-requisite(s): Biology and Chemistry-Highly recommended.

Course Description: The AP Biology course is designed to be the equivalent of a two-semester college introductory biology course usually taken by biology majors during their first year. After showing themselves to be qualified on the AP Exam, some students, in their first year of college, are permitted to take upper-level courses in biology or register for courses for which biology is a prerequisite. Other students may have fulfilled a basic requirement for a laboratory-science course and will be able to undertake other courses to pursue their majors. AP Biology should include those topics regularly covered in a college biology course for majors. The college course in biology differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the type of laboratory work done by students, and the time and effort required of students. The textbooks used for AP Biology should be those used by college biology majors. The kinds of labs done by AP students must be the equivalent of those done by college students. The AP Biology course is designed to be taken by students after the successful completion of a first course in high school biology and one in high school chemistry as well. It aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology.


Course Objectives: I. Molecules and Cells (25%)

A. Chemistry of Life (7%)
   1. Water
   2. Organic molecules in organisms
   3. Free energy changes
   4. Enzymes

B. Cells (10%)
   1. Prokaryotic and eukaryotic cells
   2. Membranes
   3. Subcellular organization
   4. Cell cycle and its regulation
C. Cellular Energetics (8%)
  1. Coupled reactions
  2. Fermentation and cellular respiration
  3. Photosynthesis

II. Heredity and Evolution (25%)

  A. Heredity (8%)
    1. Meiosis and gametogenesis
    2. Eukaryotic chromosomes
    3. Inheritance patterns

  B. Molecular Genetics (9%)
    1. RNA and DNA structure and function
    2. Gene regulation
    3. Mutation
    4. Viral structure and replication
    5. Nucleic acid technology and applications

  C. Evolutionary Biology (8%)
    1. Early evolution of life
    2. Evidence for evolution
    3. Mechanisms of evolution

III. Organisms and Populations (50%)

  A. Diversity of Organisms (8%)
    1. Evolutionary patterns
    2. Survey of the diversity of life
    3. Phylogenetic classification
    4. Evolutionary relationships

  B. Structure and Function of Plants and Animals (32%)
    1. Reproduction, growth, and development
    2. Structural, physiological, and behavioral adaptations
    3. Response to the environment

  C. Ecology (10%)
    1. Population dynamics
    2. Communities and ecosystems
    3. Global issues

Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.
Grading Procedures:  
1. Students are graded on theory and shop practice and performance.  
2. Each course must be passed with seventy (70%) percent or better.  
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment:  
Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit:  
The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility:  
The student must maintain a grade point average of 2.0 or better.