



San Diego Unified SCHOOL DISTRICT

JUNIPERO SERRA HIGH SCHOOL

5156 Santo Road
San Diego, California 92124
858-496-8342 x170

INSTRUCTOR

Ericka Senegar-Mitchell, Ph.D.
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COURSE WEBSITE

www.bridgestoliteracy.com

DROP-IN CONFERENCE PERIOD

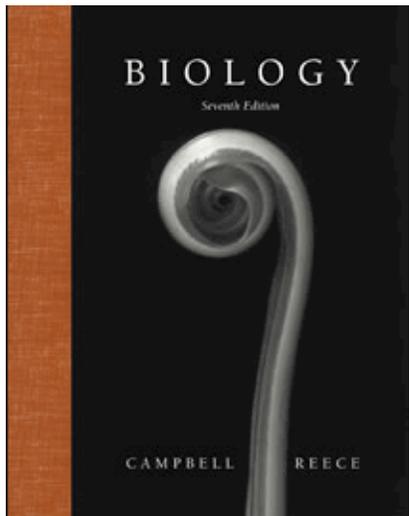
Monday and Friday 2:20-4:30 pm

COURSE PHILOSOPHY

As your instructor, my paramount concern is the development of effective, collaborative, student-centered learning communities. I am committed to the continuous learning and active participation of ALL class members at ALL times. I believe each student is responsible for creating an atmosphere of honesty and trust by openly and respectfully communicating with each other and the instructor. I embrace diversity and respect the individuality of all members of the learning community. I value relevant input from all stakeholders involved in the learning process and I especially encourage young adults to become problem-solvers not problem-dodgers.

COURSE TEXTBOOK

Campbell, *Biology*, 7th ed., Prentice Hall, 2005.



BIOLOGY 1, 2 ADVANCED PLACEMENT (AP BIOLOGY) (6191, 6192)

Grade level: 10–12

Suggested Prerequisites: Chemistry 1, 2 and Biology 1, 2, or equivalents; the commitment to succeed in rigorous AP content.

Course duration: Two semesters

Subject area in which graduation credit is given: Science; *weighted* (See note below.)

COURSE DESCRIPTION

Honors Preparatory Course (HP). In this course students engage in learning activities equivalent to those of a freshman biology course at the university level. Students successful in this course attain a depth of understanding of fundamental biological concepts and are able to demonstrate that understanding, orally and in writing, with clarity and logic. The application and relevance of biology to students' lives and to society are stressed, and inquiry and the nature of science are important content elements. Materials used for this course differ qualitatively from those used in other biology courses in both rigor and content, and in the complexity of laboratory experiences. Laboratory activities represent more than 25% of the instructional experience in this course. The students' learning activities are intended to prepare them to succeed in the Advanced Placement Examination in Biology and all students enrolled are encouraged to take the AP Biology test.

NOTE: Students who complete this course successfully with a grade of "C" or better will receive *weighted* credit.

The course as well as the AP Biology Exam is organized around three main topics:

- Molecules and Cells (25%)
- Heredity and Evolution (25%)
- Organisms and Populations (50%)

Major Themes covered within each topic are:

- Science as a Process
- Evolution
- Energy Transfer
- Continuity of Change
- Relationship of Structure and Function
- Regulation
- Interdependence in Nature
- Science, Technology, and Society

LABORATORY REQUIREMENT

Students enrolled in AP Biology will be required to complete twelve (12) labs set forth by the College Board Advanced Placement Program.

Due to the large amount of time required for laboratory set-up and the mandatory participation of each student in lab activities, it is essential that students are always present on lab days. Although the instructor will assist students with documented excused absences make-up missed lab activities, there is no guarantee that an experience equivalent to the scheduled lab activity will be available.

GRADES

Student grades will be based on the evaluation of all **COMPLETE** laboratory activities, projects, classwork /homework assignments and assessments. Incomplete assignments will **NOT** be awarded partial credit. ALL assignments and assessments are included in the computation of each student's grade, unless otherwise indicated by the instructor, and all coursework carries the same weight. **LATE WORK IS NOT ACCEPTED FOR FULL CREDIT**, but assignments submitted after the due date will be evaluated for its content and feedback given to the student.



Academic Marks

- **A = Outstanding level of performance**
Student has done excellent work and has mastered the course objectives, consistently does excellent work with skill and thoroughness; and consistently has applied knowledge gained to new situations.
- **B = High level of performance**
Student has done above average work, mastered almost all of the course objectives; and has applied knowledge gained to new situations.
- **C = Satisfactory level of performance**
Student has done average work and has mastered many of the objectives of the course.

- **D = Needs improvement in performance**
Student has done below average work and has mastered few of the objectives of the course.
- **F = Unsatisfactory level of performance**
Student's work fell below a level of acceptance for the course and was unsatisfactory.

Grade Scale*

A	100 - 93	B-	82 - 80	D+	69 - 67
A-	92 - 90	C+	79 - 77	D	66 - 63
B+	89 - 86	C	76 - 73	D-	62 - 59
B	85 - 83	C-	72 - 70	F	58 - 0

*Only letter grades (A, B, C, D, and F) will appear on report cards and transcripts; no +/-'s.

Citizenship Marks

Evaluation codes for work-study habits, attitude, behavior and attendance are:

- E = Excellent level of performance
- G= Good level of performance
- S = Satisfactory level of performance
- N = Needs Improvement in performance
- U = Unsatisfactory level of performance

Citizenship Grades will be based upon the following criteria for each grading period:

- To receive an "E" or "G" (**Excellent or Good**) students must have no more than two tardies (NO tardies for grade of "E"), NO unverified absences and NO missed assignments, be respectful in class to teacher, fellow students and other members of the learning community, adhere to our classroom philosophy and school policies and actively participate in ALL class activities.

- To receive a "S" (**Satisfactory**) students must have no more than three tardies, NO unverified absences, 1-3 missed assignments, display above average classroom behavior and participation, adhere to our classroom philosophy and school policies and actively participate in class activities.

Advanced Placement Biology

Exam

MONDAY, MAY 9, 2011 @ 8AM

- A student may receive a "N" (**Needs Improvement**) for **ONE** of the following violations: accumulating four tardies, 1-2 unverified absences, 4-5 missing assignments, excessive and disruptive talking during instruction or otherwise being a hindrance to the learning process, being disrespectful to the teacher, other students or substitute teacher, not adhering to class or school policies, blatant abuse or vandalism of lab equipment or school property, displaying below average classroom behavior and participation.

- A student may receive a "U" (**Unsatisfactory**) for **ONE** of the following violations: accumulating five or more tardies, three or more unverified absences, more than five missing assignments, flagrant disrespect to the teacher, other students or substitute teacher, defiant behavior or conduct that undermines the class learning environment, consistently exhibiting off task behaviors, lack of academic integrity (cheating, plagiarism, forging progress reports, submitting work NOT their own, etc.)

DISCIPLINARY ACTION

Individual classroom behavior will not only affect the citizenship grade, but it also affects learning readiness and thus can ultimately have a negative influence on academic achievement. We will follow a standard progressive discipline method starting with the student, then involving the parent, and finally sharing the situation with a member of our administrative team.

ATTENDANCE

AP Biology & Advanced Biology courses will adhere to the school-wide attendance program. Please refer to the parent/student handbook for more details. Parents are required to excuse a students' absence by calling the attendance office @ 858-496-8342 ext. 205 by 8am.

PARENTS: It is important to understand that excusing your student from a day of school does not excuse them from the work they should have completed or from assignments that were due on the day of their absence. Student academic progress can be hindered as a result of frequent absences but lower grades can be avoided. Please request class assignments within two weeks of a long-term absence and refer to course website or contact instructor via email for one day excused absences.

Parents are encouraged to monitor student progress and attendance through the district-wide Zangle program at:

<https://dwa.sis.sandi.net/parentconnect/>



Unit of Study	Standards	Big Ideas	AP Biology Textbook Chapter(s) (PEARSON Campbell Biology 7th Ed., 2005)	Core Lab Experiences
Introduction: <ul style="list-style-type: none"> Nature of Science Team Building Safety 	<p>Scientific progress is made by asking meaningful questions and conducting careful investigations.</p> <p>(I&E 1.a. thru 1.m.)</p>	<p>Scientific inquiry involves engaging in scientific questions, giving priority to evidence, formulating explanations based on evidence, connecting explanations to scientific knowledge, and communicating and justifying explanations.</p>	<p>Chapter 2-5</p> <p>CH2 – What is life? CH3- H₂O & Fitness CH4- Carbon CH5-Macromolecules</p>	<ul style="list-style-type: none"> Lab #2 - Enzyme Catalysis
Unit 1: Ecology <ul style="list-style-type: none"> Food Web/Chains Nutrient Cycles Population Dynamics Succession Communities and Ecosystems Global Issues 	<p>Stability in an ecosystem is a balance between competing effects.</p> <p>(6.a., 6.b., 6.c., 6.d., 6.e., 6.f., 6.g.)</p>	<p>The amount of life any environment can support is limited by the available energy, water, oxygen and minerals, and the ability of ecosystems to recycle the residue of dead organic materials.</p> <p>Humans live within the world’s ecosystems. Humans modify ecosystems as a result of population growth, technology and consumption. There are difficult social and ethical implications of humankind’s intervention in ecosystems.</p>	<p>Chapter 50-54</p> <p>CH50-Intro to Ecology CH51-Behavioral Ecol CH52-Pop. Ecology CH53-Community Ecol CH54-Ecosystems</p>	<ul style="list-style-type: none"> Lab #12 - Dissolved Oxygen and Aquatic Primary Activity (Project) A Fish Tale: Survival in Aquatic Environments
Unit 2: The Cell <ul style="list-style-type: none"> Cells Prokaryotic/Eukaryotic Cell Biology Macromolecules Biochemistry (Enzymes) Diffusion/Osmosis Bioenergetics <ul style="list-style-type: none"> Photosynthesis Cellular Respiration 	<p>The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism’s cells.</p> <p>(1.a., 1.b., 1.c., 1.d., 1.e., 1.f., 1.g., 1.h.)</p>	<p>Organisms have internal environments differing from the external environment. A cell’s internal environment is regulated by the cell membrane.</p> <p>Living systems detect and respond to changing conditions in order to maintain homeostasis. Maintaining homeostasis requires the interaction of many cells, tissues and organ systems.</p>	<p>Chapter 6-12</p> <p>CH6-Intro to Cell Bio CH7-Cell Membranes CH8-Bioenergetics CH9- Cellular Respir. CH10-Photosynthesis CH11-Cell Comm. CH12-Cell Cycle</p>	<ul style="list-style-type: none"> Lab #1 - Osmosis & Diffusion Lab #4 – Photosynthesis Lab #5- Cellular Respiration (Project) Student 3D Cell Puzzles
Unit 3: The Human Body <ul style="list-style-type: none"> Nervous Circulatory Excretory (Urinary, etc.) Endocrine Immunology Digestive Muscle/Skeletal 	<p>As a result of the coordinated structures and functions of organ systems, the internal environment of the human body remains relatively stable (homeostatic) despite changes in the outside environment; organisms have a variety of mechanisms to combat disease.</p> <p>(9.a., 9.b., 9.c., 9.d., 9.e., 10.a., 10.b., 10.c., 10.d., 10.e.)</p>	<p>The immune system is designed to protect against microscopic organisms and foreign substances that enter from outside the body and against some cancer cells that arise within.</p>	<p>Chapter 41-49</p> <p>CH48-Nervous CH49-Sensory/Motor CH42-Circulation CH45-Endocrine CH43-Immunology CH41-Digestive CH44-Excretory CH46-Reproduction*</p>	<ul style="list-style-type: none"> Lab #10 - Physiology of the Circulatory System Lab #11- Animal Behavior Fish Lab (Respiration Rate vs. Temperature) Earthworm Responses Lab Reading: <i>Astonishing Hypothesis</i> by Francis Crick (Evolution of Human Sight)

<p>Unit 4: Genetics</p> <ul style="list-style-type: none"> • DNA, RNA Structure and Function • Protein Synthesis • Meiosis • Mutation • Heredity • Protein Synthesis • Mendelian Genetics • Inheritance Patterns 	<p>Mutation and sexual reproduction lead to genetic variation in a population.</p> <p>(2.a., 2.b., 2.c., 2.d., 2.e., 2.f., 2.g., 3.a., 3.b., 4.a., 4.b., 4.c., 4.d., 4.e., 5.a., 5.b., 5.c.)</p>	<p>Sexual or asexual reproduction is necessary so that genetic information is transferred to offspring. The continuity of species depends on the transfer of information, which occurs through reproduction (meiosis) and the transfer of genetic material (DNA).</p> <p>Sexual reproduction results in patterns of inheritance that can be predicted using probability.</p> <p>The structures of DNA & RNA allow both for genetic information to be passed from generation to generation, and for genetic information to be expressed s traits in an individual through the synthesis of proteins.</p> <p>The nature of genetic material provides for duplication of living forms, but it also may introduce variations through mutations and genetic recombination, which create new materials on which natural selection may act.</p> <p>Cells grow, multiply and differentiate during an organism’s development, and during its life. Selective gene expression is a mechanism by which differentiation can occur among genetically equivalent cells.</p>	<p>Chapter 13-17, 20-21</p> <p>CH13-Meiosis CH14-Mendel CH15-Chromosomal CH16-Molecular CH17-Gene to Protein CH20-DNA Tech CH21-Genetic/Devel.</p>	<ul style="list-style-type: none"> • Lab #3 - Mitosis & Meiosis • Lab #6 - Molecular Biology • Lab #7 - Genetics of Organisms • (Project) PopBead Biology Lab (DNA to Proteins)
<p>Unit 5: History of Biological Diversity (Evolutionary Biology)</p> <ul style="list-style-type: none"> • Natural Selection • Variation & Diversity • Nature of Theories • Mechanism of Evolution • Kingdoms, Cladograms • Speciation • Hardy-Weinberg 	<p>The frequency of an allele in a gene pool of a population depends on many factors and may be stable or unstable over time; evolution is the result of genetic changes that occur in constantly changing environments.</p> <p>(7.a., 7.b., 7.c., 7.d., 8.a., 8.b., 8.c., 8.d., 8.e.)</p>	<p>Biological evolution provides a scientific explanation for the fossil record of ancient life forms, as well as for the striking similarities observed among the diverse species of living organisms.</p> <p>Natural selection is major mechanism of biological evolution.</p> <p>Adaptations lead to diversity. Adaptations arise through evolution.</p>	<p>Chapter 22-26</p> <p>CH22-Descent w/Mod. CH23-Evol. of Pop. CH24-OriginofSpecies CH25-Phylogeny</p>	<ul style="list-style-type: none"> • Lab #8 - Population Genetics and Evolution • “Darwin’s Dangerous Idea” (Articles and Movie Presentation) • (Project) Punnett Squares and Pedigrees
<p>Unit 6: Structure and Function of Plants, Animals</p> <ul style="list-style-type: none"> • Reproduction • Growth & development • Response • Structural, physiological, and behavioral adaptation 	<p>Organisms in ecosystems exchange energy and nutrients among themselves and with the environment.</p> <p>(6.a., 6.b., 6.e., 6.g.*,7.d., 8.f.*, 8.g.*, 9.a.,9.b., 9.c.,9.i.*)</p>	<p>Living organisms appear in many variations, yet there are basic similarities among their forms and functions.</p> <p>ALL organisms require an outside source of energy to sustain life processes; all organisms demonstrate patterns of growth and the continuity of all species require reproduction. All organisms are constructed from the same types of macromolecules and inherit DNA from a parent or parents.</p> <p>Environmental factors frequently regulate and influence the expression of specific genes.</p>	<p>Chapter 35-38, 40</p> <p>CH35-Plant Develop. CH36-Transport CH37-Plant Nutrition CH38-Angiosperms CH40-Animal Form</p>	<ul style="list-style-type: none"> • Lab #9 - Transpiration • Dissection of an Angiosperm • (Project) Nature Walk: The Identification of Local Plant Species - Student will create field guides of the flora and fauna observed in the area surrounding the school site.

