General Biology

Course Syllabus

2018-2019

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**Grading**

Grades will be entered into the computer in the following categories:

Daily

Assessments

However, quarter grades will be calculated as a percentage of total points earned and graded according to the 2016-2017 Sully Buttes grading scale:

94-100 A

87-93 B

79-86 C

70-78 D

69 and below F

Final grades will be calculated as follows:

First Quarter 50%

Second Quarter 50%

**Late Work**

Work is due at class time on the due date. With the exception of labs and special projects, this is generally 24 hours after assigned. Work that is one day late will receive no more than 90% of points earned. Two days late will receive another 20% reduction. After that, no points will be given but work must be turned in to result in removal from ICU.

Missing work due to an absence from school will be allowed two school days per day missed according to the student handbook. It is the responsibility of the student to obtain work missed due to an absence.

**ICU Policy**

Work not handed in 24 hours after the due date will result in the student being placed on ICU. Once placed on ICU, the student will not be removed from the list until ICU has been served AND the work has been handed in. I WILL NOT be interrupted during class to accept late work.

**Textbook**

Biology Miller & Levine 2010 Pearson Education, Inc.

Chapters covered: 3-6, 7-10, 11-14, 17-19

**Course Objectives** (Standards) (taken from DOE website)

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| **High School Life Science Standards (Grades 9-12)** | |
| HS-LS1-1 | Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells. (SEP: 6; DCI: LS1.A; CCC: Structure/Function) |
| HS-LS1-2 | Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. (SEP: 2; DCI: LS1.A; CCC: Systems) |
| HS-LS1-3 | Plan and carry out an investigation to provide evidence that feedback mechanisms maintain homeostasis. (SEP: 3; DCI: LS1.A; CCC: Stability/Change) |
| HS-LS1-4 | Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. (SEP: 2; DCI: LS1.B; CCC: Systems) |
| HS-LS1-5 | Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. (SEP: 2; DCI: LS1.C; CCC: Systems, Energy/Matter) |
| HS-LS1-6 | Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. (SEP: 6; DCI: LS1.C; CCC: Energy/Matter) |
| HS-LS1-7 | Use a model of the major inputs and outputs of cellular respiration (aerobic and anaerobic) to exemplify the chemical process in which the bonds of food molecules are broken, the bonds of new compounds are formed, and a net transfer of energy results. (SEP: 2; DCI: LS1.C; CCC: Energy/Matter) |
| HS-LS2-1 | Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales. (SEP: 5; DCI: LS2.A; CCC: Scale/Prop.) |
| HS-LS2-2 | Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales. (SEP: 5; DCI: LS2.A, LS2.C; CCC: Scale/Prop.) |
| HS-LS2-3 | Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. (SEP:6; DCI: LS2.B; CCC: Energy/Matter ) |
| HS-LS2-4 | Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. (SEP: 5; DCI: LS2.B; CCC: Energy/Matter) |
| HS-LS2-5 | Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. (SEP: 2; DCI: LS2.B, PS3.D; CCC: Systems) |
| HS-LS2-6 | Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms under stable conditions; however, moderate to extreme fluctuations in conditions may result in new ecosystems. (SEP: 7; DCI: LS2.C; CCC: Stability/Change) |
| HS-LS2-7 | Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.\* (SEP: 6; DCI: LS2.C, LS4.D, ETS1.B; CCC: Stability/Change) |
| HS-LS2-8 | Evaluate the evidence for the role of group behavior on individual and species’ chances to survive and reproduce. (SEP: 7; DCI: LS2.D; CCC: Cause/Effect) |
| HS-LS3-1 | Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring. (SEP: 1; DCI: LS1.A, LS3.A; CCC: Cause/Effect) |
| HS-LS3-2 | Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors. (SEP: 7; DCI: LS3.B; CCC: Cause/Effect) |
| HS-LS3-3 | Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.(SP: 4; DCI: LS3.B; CCC: Scale/Prop.) |

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| HS-LS4-1 | Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence. (SEP: 8; DCI: LS4.A; CCC: Patterns) |
| HS-LS4-2 | Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment. (SEP: 6; DCI: LS4.B, LS4.C; CCC: Cause/Effect) |
| HS-LS4-3 | Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait. (SEP: 4; DCI: LS4.B, LS4.C; CCC: Patterns) |
| HS-LS4-4 | Construct an explanation based on evidence for how natural selection leads to adaptation of populations. (SEP: 6; DCI: LS4.C ; CCC: Cause/Effect) |
| HS-LS4-5 | Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. (SEP: 7; DCI: LS4.C; CCC: Cause/Effect) |
| HS-LS4-6 | Use a simulation to research and analyze possible solutions for the adverse impacts of human activity on biodiversity. (SEP: 5; DCI: LS4.C, LS4.D, ETS1.B; CCC: Cause/Effect) |
| HS-LS4-7 | Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy. (SEP: 4; DCI: LS4.A ; CCC: Patterns) |