ACES Academic Enrichment Center
2019 Summer Biology II Course Syllabus

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Textbook: OpenStax Biology 2e (https://openstax.org/details/books/biology-2e)

Course Description: This course is designed to give students an introduction to biology, making meaningful connections among the structures, processes, and interactions that exist across biological systems—from cells to ecological communities. The first part of this course (Biology II) will focus on three main areas: Genetics, Evolution and Ecological Systems.

Course Objectives and Student Learning Outcomes:
Students will understand that…

- ⇒ Models can be used to illustrate and predict the inheritance of traits.
- ⇒ The theory of evolution states that all organisms descend from a common ancestor and share some characteristics.
- ⇒ Biological evolution is observable as phenotypic changes in a population over multiple successive generations.
- ⇒ Speciation, extinction, and the abundance and distribution of organisms occur in response to environmental conditions.
- ⇒ Biological systems depend on the cycling of matter within and between Earth's systems.
- ⇒ Most ecosystems rely on the conversion of solar energy into chemical energy for use in biological processes.
- ⇒ The dependence on the availability of abiotic and biotic resources results in complex and dynamic interactions between organisms and populations.
- ⇒ Changes to the environment can alter interactions between organisms.

Class structure: Each class meeting (except for the first one) will consist of some time at the beginning reviewing previous quizzes and homework. After that, there will be a mixture of lectures and activities to help students understand concepts being covered. Short quizzes will be given at the beginning of class to assess student understanding of material covered the previous day. For the first class day, a quiz will be given at the beginning of class to simply assess student background knowledge on the material being covered throughout the course. The last day of class will entail a comprehensive exam to assess student learning throughout the course. There will be an extensive review session prior to the exam. Reading should be done prior to class to increase comprehension of the subject material being discussed.

Class Notes: For this course, we are following the College Board's Pre-AP Biology content. We will be covering A LOT of information. I will do my best to cover only what needs to be covered and not throw too much information at you. The reading in the schedule is tentative, meaning that as we approach that particular lesson, I may change the reading assignment a bit. This would typically occur if I don't need you to read everything I specified in the original schedule.

Schedule (subject to change based on pace of learning):

WEEK 1:

Date	Topic	Tentative Reading	Homework
7/22	Inheritance Patterns	Ch. 12, Ch. 13.2	HW 1
7/23	Patterns of Evolution	Ch. 18.1, Ch. 20	HW 2
7/24	Mechanisms of Evolution	Ch. 19	HW 3
7/25	Speciation	Ch. 18.2-18.3	HW 4
7/26	Cycling of Matter in the Biosphere	Ch. 2.2, Ch. 46	HW 5

WEEK 2:

Date	Topic	Tentative Reading	Homework
7/29	Population Dynamics	Ch. 45.1-45.5, Ch. 46.2	HW 6
7/30	Defining Ecological Communities	Ch. 44	HW 7
7/31	Ecological Community Dynamics	Ch. 45.6	HW 8
8/1	Changes in Ecological Communities	Ch. 47.1-47.3	HW 9
8/2	Review Session & Comprehensive Exam		