

Heights Tutorial Class Description

Course Title: Biology with Lab

Teacher: Alison Ricker

Grade Range: 9th+

Day: Thursday

Time: 8:30-9:55am

Minimum of 6 students required to start the class.

Credit (for high school): 1.0 full credit with lab

Costs:

Tuition: \$475

Lab fee: \$75

Course Description

Discovering Design with Biology gives the student an introduction to how living organisms are designed, how they interact with one another, and how they interact with their physical environment. Students are taught how biologists classify life, the chemical processes that make life possible, the structures of RNA and DNA, and the designs of the different cells found in living organisms. Students also learn the means by which photosynthesis, cellular respiration, and cellular reproduction occur. They then learn the current state of biotechnology. With the molecular and cellular basis of life covered, the students are then given a survey of the different kinds of organisms found in nature: archaea, bacteria, protists, fungi, invertebrates, vertebrates, and plants. The students then learn the biogeochemical cycles that keep environments hospitable to life, which leads to a discussion of ecosystems. Throughout the course, students see that life is the result of design and that organisms have been given the ability to adapt to their surroundings. In addition, they learn various problems associated with the modern evolutionary synthesis.

The experiments include extracting DNA from fruit, examining the effects of temperature and pH on enzymes, exploring osmosis and diffusion, building a pedigree, culturing bacteria, growing and examining fungi, and analyzing the structure of a feather. In addition, there are several experiments that explore the microscopic world, including identifying the stages of mitosis, studying live bacteria that were cultured by the student, identifying budding in yeast, and analyzing the microscopic structure of plants and animals. There are also four dissection experiments: the earthworm, crayfish, fish, and frog.

During class time, the students will complete their labs, go over chapter review questions, and give project presentations. At home, the students will read the chapters, answer comprehension check questions, answer chapter review questions, prepare projects and take their chapter tests.

Prerequisites: Completing a middle school general science and/or physical science course is recommended, but not required.

Textbooks Required

Discovering Design with Biology by Dr. Jay L. Wile

ISBN 979-8-9852529-4-1 (Student textbook only)

Supply List

*Pens/pencils

*2" 3-ring binder

*College ruled notebook paper

*Lab notebook (unlined if preferred)

*Dividers