

Course Title: Topics in Biology

Course Description:

Students look at biology as an evolutionary approach and are introduced to a range of important biological concepts in an innovative method. Lab procedures and problem- and project-based experiments are performed. Students explore the scientific method, biochemistry, microbiology, cell structure and cellular reproduction. DNA, genetics, evolution and ecology are explored while facing the ethical issues faced by modern scientists.

Learning Objectives: By the end of this course, students will be able to answer the following questions:

- What is biology?
- Why study biology?
- How do you study biology?
- Which molecules are important to living organisms?
- What are cells?
- How do all the individual parts of cells function together?
- What are microbes?
- How do genes and DNA determine what an organism is?
- How is biotechnology related to health and nutrition?
- What is evolution?
- What are the different groups of living organisms?
- How can we witness evolution?
- How do organisms live in relationship to each other? Why are these relationships important?
- What are some of the ethical issues facing scientists?

Resources and Materials:

Online Readings from

- Vision Learning—Biology
<http://www.visionlearning.com/library/index.php>
- Online Biology Book
<http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookTOC.html>
- Essential Study Partner—Biology
http://www.mhhe.com/biosci/esp/2001_gbio/default.htm#ok
- Hippocampus Tutorials
<http://www.hippocampus.org/>
- Science News for Kids

<http://www.sciencenewsforkids.org/>

- Biology Glossary

<http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookgloss.html>

- Online Lab and Tutorial sites

Student Evaluation and Grading Policies for Enrichment Courses:

Since this is an enrichment class, a narrative evaluation will be written at the conclusion of the course. Students will be evaluated on the quality of their work, participation in activities and discussions, and performance on labs and projects. Points are used to assess mastery of the course content and skills, but NOT to award a final grade. Students will also be evaluated on timely submission of assignments and ability to work and learn independently.

Instructor Biography:

Mrs. Nuño currently teaches AP Biology, Chemistry, and Honors Chemistry in an independent school in western Massachusetts. She has a B.S. in environmental health from UCLA, an M. A. in biological science from UC Santa Barbara, a certificate in online education from UCLA, and extensive course work in science education. Prior to moving to the east coast, she taught AP Biology, chemistry, and conceptual physics in a private school in Los Angeles. She now lives on a tree farm in southern Vermont!

Contact Information:

Email: xxx@xxx.xxx

Cyber Office Hours (East Coast Time)

Daily: 5:00—6:00 am

Tuesday: 6:00—7:00 pm

Wednesday: 7:00—8:00 pm

Course Timeline:

Dates	Topics	Activities <i>Discussion Forum</i>	Lab Reports <i>Assignments</i>
Jan 15—22	Orientation to Online Learning		
Jan 23 - 29	What is Biology?	What Biologists Do Scientific Method	Crickets Time to Think
Jan 30 – Feb 5	Chemistry of Life	Building Biomolecules About Fats Molecular Menagerie	Nutrition Analysis Phytochemicals Enzymes
Feb 6- Feb 12	Life under the Microscope	Interactive Cell Stem Cells Microbes	Making Vaccines Virtual Microscope Virtual Pond Life
Feb 13 – Feb 19	About Genes	Engineer a Crop Genetics Explorations DNA Explorations	Corn Genetics Hemoglobin Genetics of Insects Bio Tech Corn

Feb 20 – Feb 26	Life on Earth	Heart Transplant Invertebrates Plants Vertebrates	Classifying Life Vertebrate Hearts Whale Evolution Mystery Plant
Feb 27 – Mar 4	At Home on Earth	Biomes Mission Battle for the Dunes Trophic Levels	Bower Birds Ecological Footprint Predator-Prey Lesson of the Kaibab
Mar 5 – Mar 19	Student Presentations	Comment on Student Presentations	Report on Biologist or Biology Topic

GLL Sample