BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

BIOL 1 - Introduction to Biology **4 Unit(s)**

Prerequisite(s): NONE
Recommended Prep: Reading Level IV; English Level IV; Math Level IV
Transfer Status: CSU/UC
51 hours Lecture
51 hours Lab

This course is a survey of the basic principles and concepts used by biologists to explain how organisms live and survive. Topics include ecology, a survey of the worlds organisms, genetics, evolution, cell structure and function, and energy conversions.

II. **OBJECTIVES**

Upon successful completion of this course, the student will be able to:

A. Apply the scientific method and recognize it as a distinctive way of knowing.
B. Identify the basic structures common to most cells and explain their function.
C. Compare and contrast the steps of photosynthesis and cellular respiration.
D. Describe how any organism is taxonomically classified.
E. Provide an overview of the 3 domains of life which considers contrasts and similarities.
F. Explain how the structure of the major groups of plants and animals is directly related to function and ultimately the organisms way of survival.
G. Explain the basic mechanism of Darwinian natural selection.
H. Describe the work of Gregor Mendel, his basic genetic laws, and how they apply to basic human traits.
I. Explain the basic ecological principles that bind an ecosystem together.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics		Hours
1.	The Scientific Study of Life	2.00
2.	Basic Chemistry	4.00
3.	Basic Organic Chemistry	3.00
4.	The Cell	3.00
5.	Energy and Cellular Membranes	3.00
6.	Respiration and Photosynthesis	4.00
7.	Molecular Biology of the Gene	4.00
8.	Cellular Reproduction	2.00
9.	Genetics	4.00
10.	Evolution	5.00
11.	History of Life on Earth	1.00
12.	Plants	3.00
13.	Animals	4.00

14.	Ecology	4.00
15.	Exams	5.00
Total Hours		51.00

Lab

Topics		Hours
1.	Introduction and Lab Safety	3.00
2.	The Scientific Approach	4.00
3.	Chemistry of Life	3.00
4.	Microscopes and Cells	4.00
5.	Photosynthesis and Respiration	3.00
6.	Cell Reproduction	3.00
7.	Human Physical Fitness	3.00
8.	Human Genetics and Biotechnology	3.00
9.	Natural Selection and Evolution	4.00
10.	Study of Local Plant Communities	3.00
11.	Rat and Human Anatomy	3.00
12.	Plant and Plant-Like Organisms	3.00
13.	Survey of the Animal Kingdom	3.00
14.	Lab exams	9.00
Total Hours		51.00

IV. **METHODS OF INSTRUCTION**

A. Lecture
B. Instructor Demonstrations
C. Field Trips
D. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
E. Reading Assignments
F. Multimedia Presentations
G. Laboratory Experiments

V. **METHODS OF EVALUATION**

A. Homework
B. Class participation
C. Written Assignments
D. A mandatory term paper will be required of all students.
E. Lecture and laboratory exams that include written responses which require students to describe and explain class information.
F. The written assignments expected of all students for the completion of this course will exceed 1500 words.

VI. **EXAMPLES OF ASSIGNMENTS**

A. Reading Assignments
   1. Read the textbook section discussing the cell cycle and be prepared to discuss the implications of a failure in the regulatory mechanism of the cell cycle.
   2. Read the textbook section discussing water. Be prepared to discuss the essential

characteristics of water and describe how the polarity of water results in these characteristics.

B. Writing Assignments
   1. Write a paragraph describing the evolution of hominids. Present your summary to your lab group.
   2. Write a 5 page essay discussing an ecological issue. Include a discussion of solutions to the issue. Be prepared to discuss your findings.

C. Out-of-Class Assignments
   1. Create a diagram outlining the process of protein synthesis. Include images outlining each step in the process. Present your diagram to small groups in class.
   2. Research advertisements for products on the internet. Analyze the use of the scientific method and pseudoscience. Write a 2 page paper summarizing your findings and be prepared to discuss your summary.

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**

Textbooks:

A. Krogh, David. Biology: A Guide To The Natural World. 5th Edition. Prentice Hall, 2013.

B. Bills, Fugle, Yarosevich, Mason. Laboratory Studies for Biology 1. Butte College Press, 2007.

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