



**UNIVERSIDAD LIBRE®**

Personería Jurídica No. 192 de 1946 de Mingobierno  
Nit.: 860.013.798-5



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**FREE UNIVERSITY PEREIRA SECTION**

**UNDERGRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING**



SUBJECT: BIOLOGY

CODE: -----

SEMESTER: SECOND

HOURS WEEKLY: 4

THEORETICAL: 4

PRACTICES:

**GOALS:**

Provide students with basic knowledge about the origin and evolution of life.

Allow you to identify and differentiate living organisms

Provide him with basic knowledge so that he understands the main biological phenomena,  
its characteristics and its form of degradation.

**METHODOLOGY:**





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This course will be led by a professor who will alternate his master classes with presentation of audiovisuals and the realization of practical research on the issue.

### **ASSESSMENT:**

Two midterm exams and two research papers per group with a weight of 25% each.

### **CONTENT:**



#### **UNIT ONE: THE ORIGIN OF LIFE**

• Big Bang Theory and the creation of the universe

- The idea of spontaneous generation
- The scale of geological time and life
- The Earth: a special planet

#### **UNIT TWO: FUNDAMENTAL CONCEPTS**

• Introduction and biological terminology

- The cell





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- The gene
- Evolution and natural selection
- The molecular basis of biology



### UNIT THREE: CELLS AND TISSUES

- The nucleus, the cytoplasm and the cell membrane
- Osmosis
- Matter and Energy
- Anaerobic and aerobic respiration
- Biochemical systems
- Plant and animal tissues
- Metabolisms and cell reproduction
- Photosynthesis

### UNIT THREE: TAXONOMY OF LIVING BEINGS

### UNIT FOUR:





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- Origin and classification of plants
- Origin and classification of animals
- Origin and classification of protists
- Taxonomic schemes and diagrams
- Binomial nomenclature



## UNIT FIVE: PRINCIPLES OF GENETICS

- Introduction
- Mathematical bases
- Mendelian genetics
- Structure and effects of genes
- The genetic code and mutations
- Sex determination

## LITERATURE:

ERICKSON J. Life on Earth: Origin and Evolution. McGraw-Hill. Spain, 1992.

BAKER J. and ALLEN G. Biology and Scientific Research. FEI. USA. 1970 SWANSON

C. The Cell. Prentice Hall. NJ 1975.





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FRIED E. Biological. McGraw Hill (Schaum) 1992.

JENSEN O. Botany McGraw Hill 1991.

