



UNIVERSIDAD LIBRE®

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



FREE UNIVERSITY PEREIRA SECTION

UNDERGRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING



SUBJECT: ECOLOGY

CODE -----

SEMESTER: THIRD

HOURS WEEKLY: 4

THEORETICAL: 4

PRACTICES:

PREREQUISITES: BIOLOGY

GOALS:

Provide the student with the theoretical bases to understand the structure and the functions of the organization of nature.

Understand the main ecological concepts and their applications for conservation of the environment.

Create an awareness of responsibility regarding actions towards nature.





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METHODOLOGY:

Illustrated master classes with audiovisual tools. Practical field trips to locations
of ecological interest. Conducting group research.

CONTENT:



UNIT ONE: GENERAL PRINCIPLES

- Fundamental terminology and concepts
- Relationship with Engineering and other sciences
- Ecology: Science of synthesis
- Current importance and ecological degradation

UNIT TWO: THE ECOSYSTEM

- Levels of ecological organization
- The ecosystem: unit of study of nature
- Aquatic and terrestrial ecosystems
- Ecosystem or natural systems





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• Structure and functions

- Sequences

UNIT THREE: ENERGY OF ECOSYSTEMS



- Laws of thermodynamics

- Producers and consumers

• Food chains and networks

• Biogeochemical cycles and energy

UNIT FOUR: BIOGEOGRAPHY

- Biogeographic regions

• Dispersion media

• Borders and natural barriers

- Biogeographic isolation and refuges

• Continental Drift

UNIT FIVE: DEMOGRAPHIC ECOLOGY

• Survival, growth and reproduction





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- Reproduction of unicellular and multicellular organisms
- Principles of demography and simplified mathematical models
- The predator-prey system: biological control
- Specific populations, swarms and populations of associated species



LITERATURE:

MARGALEF R. Ecology. From. Omega Barcelona, 1982

Perspectives in Ecological Theory, Chicago Univ., 1968

ODUM E. Fundamentals of Ecology. Mexico. 1969

ROLDAN G. Ecology, Environmental Science. Voluntad Medellín, 1985

Colinvaux Pa. Introduction to Ecology. New York, 1973

MARGALEF R. Indicator organisms in limnology. Madrid, 1965.

