

# **Bioecology**

## **Module: Soil Science**

### **Lecture 1.**

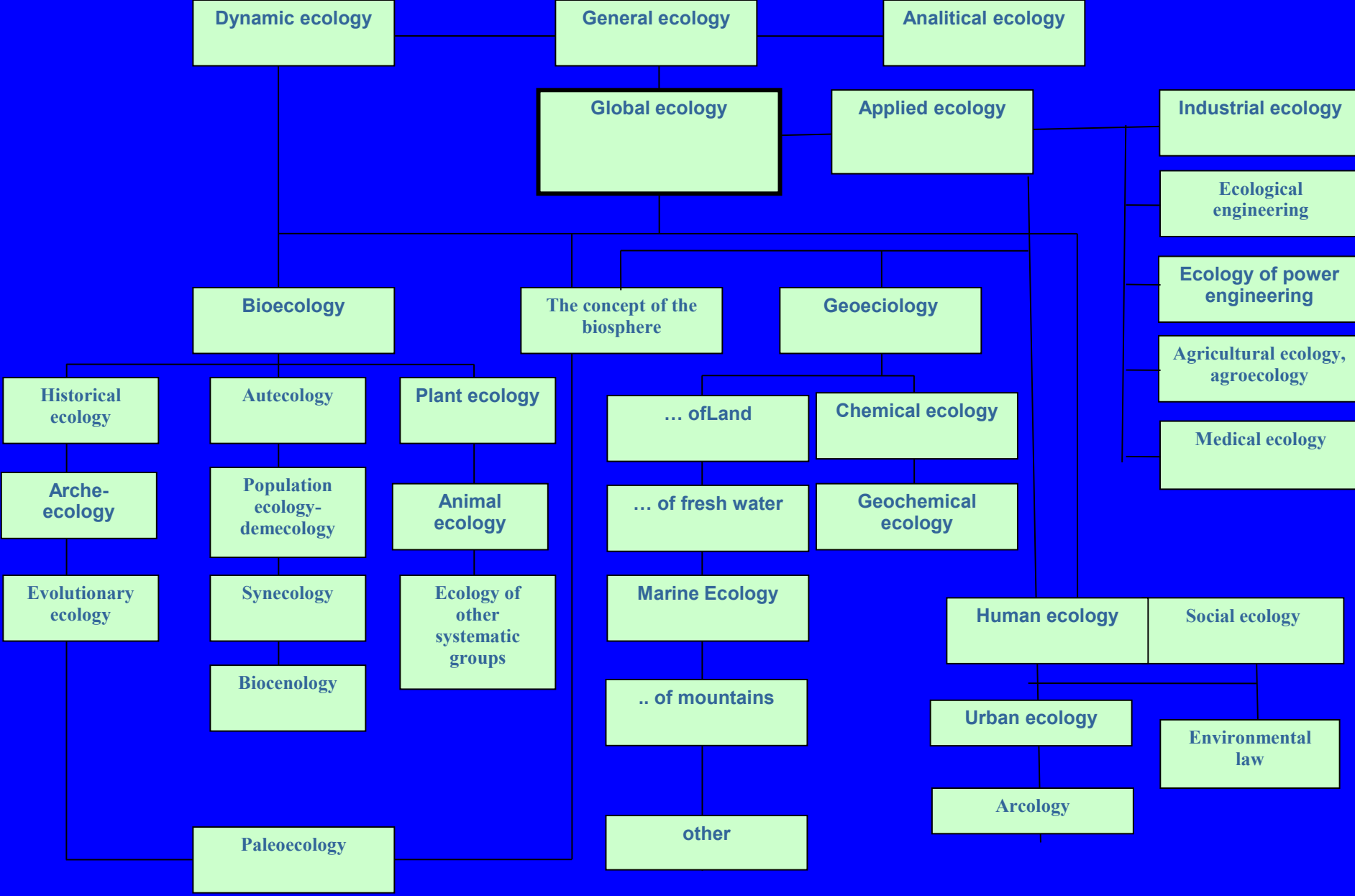
### **Soil Science. Pedological and edaphological concepts.**

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**Bioecology** is the "classical" ecology, formed in the framework of biology.

**Ecology** (from Greek: οἶκος, "house", or "environment"; -λογία, "study of") is the scientific analysis and study of interactions among organisms and their environment.

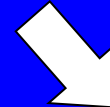
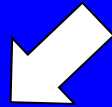
**Ecology** includes the study of interactions that organisms have with each other, other organisms, and with abiotic components of their environment.



**Types of ecology**

*Soil science* is the study of soil as a natural resource on the surface of the earth including soil formation, classification and mapping; physical, chemical, biological, and fertility properties of soils; and these properties in relation to the use and management of soils.

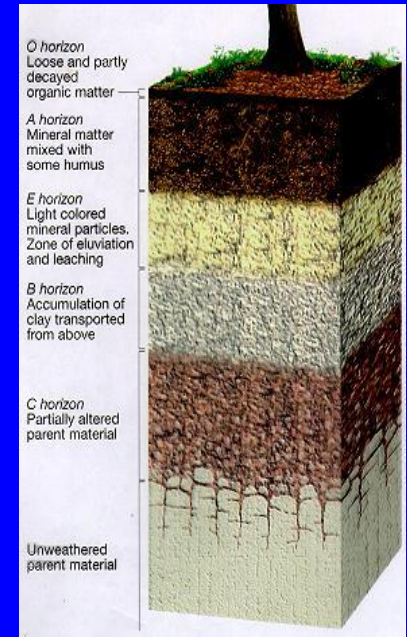
**Approach of Soil Science**



*Pedology*

*Edaphology*

➤ **Pedological Approach: *Pedology*** (from Greek word *pedon*, means soil or earth) is the study of soil as a natural body, the origin of the soil, its classification and its description.



➤ **Edaphological Approach: *Edaphology*** (from Greek word *edaphos*, means soil or ground) is the study of soil from the stand point of higher plants. Edaphologists consider the various properties of soil in relation to plant production.



# Soil Science has six well defined and developed disciplines:

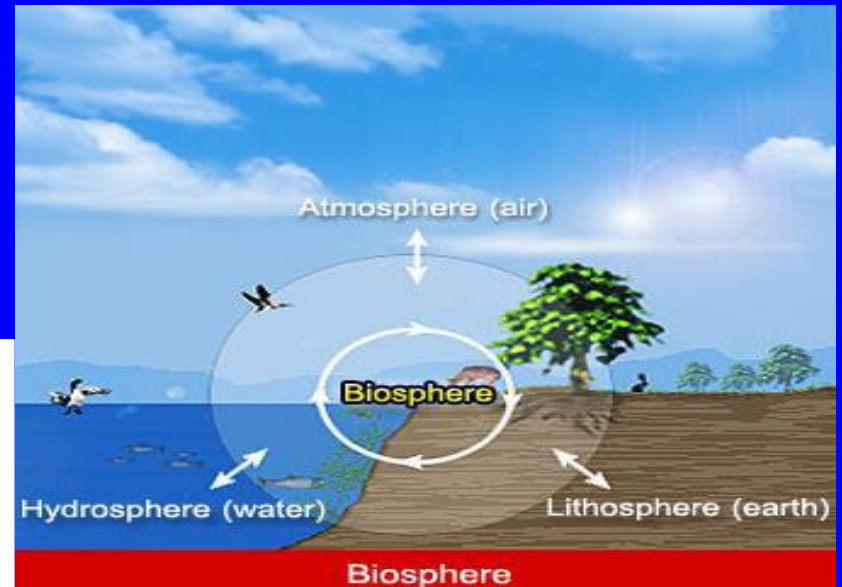
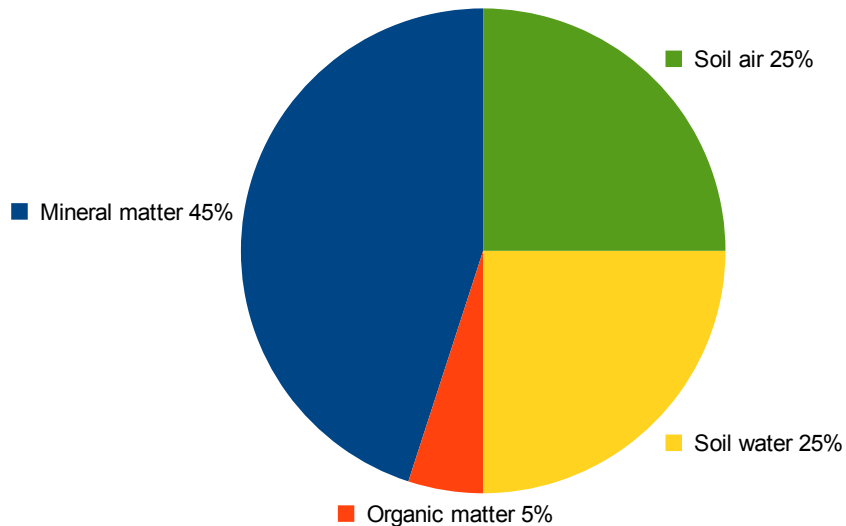
- ✓ **Soil fertility:** Nutrient supplying properties of soil
- ✓ **Soil chemistry:** Chemical constituents, chemical properties and the chemical reactions
- ✓ **Soil physics:** Involves the study of physical properties
- ✓ **Soil microbiology:** Deals with micro organisms, its population, classification, its role in transformations
- ✓ **Soil conservation:** Dealing with protection of soil against physical loss by erosion or against chemical deterioration i.e excessive loss of nutrients either natural or artificial means.
- ✓ **Soil Pedology:** Dealing with the genesis, survey and classification



## Soil as a three dimensional body:

Soil is a three dimensional body having **length**, **breadth** and **depth**. They form a continuation over the land surface and differ in properties from place to place. Its upper boundary is air or water and lower boundary is the rock lithosphere.

## Composition of soil on volume basis (Soil components):



*Thank you for attention!*