

BBIO102 Non-Animal Diversity

ECTS Value: 5 ECTS

Module Description

The aim of this module is to convey a sound understanding of factors which give rise to biological diversity. Evolutionary relationships among organisms, species, higher taxa, or other biological entities will be discussed. The module also aims to give students an overview of the diversity of non-animal biota where the criteria used for determining taxonomic groupings will be highlighted. It will cover systematics in relation to non-animal organisms and current nomenclature. Examples of local species will also be provided whenever possible when discussing the various groups. The module unit content will include the following topics:

- Introduction to Classification
 - Structural and functional organisation of kingdoms
 - Evolutionary relationships among groups,
 - Applied: Predicting the life-style of newly-encountered living things
- The three domain system
 - Archaea (archaeobacteria)
 - Bacteria: Mycoplasmas, cyanobacteria, Gram-positive bacteria, and Gram-negative bacteria.
 - Eukarya: Protista, Fungi, Plantae,
- Bryophyta: adaptations to life on land Tracheophyta including the Polypodiophyta, Pinophyta and Magnoliophyta.

Overall Objectives and Outcomes

By the end of this module, the learner will be able to:

Competences

- a. demonstrate an understanding of the ecological and evolutionary processes giving rise to present-day diversity of living organisms;
- b. explain the evolutionary relationships among the different groups;
- c. explain traditional hierarchical classification systems;
- d. classify organisms into their respective kingdom, phylum and class;
- e. predict the life-styles of newly-encountered members of the groups;
- f. describe the characteristics of major taxa, and their fundamental similarities and differences.

Knowledge

- a. demonstrate understanding of the diversity of lifeforms and strategies of non-animal organisms in the biosphere
- b. value how the evolutionary processes give rise to the diversity of living organisms
- c. identify evolutionary relationships among the different groups
- d. establish structural and functional organisation of kingdoms
- e. examine the mode of life of organisms in each taxon
- f. outline the hierarchal classification system
- g. demonstrate knowledge of the terminology used to describe species' form and function
- h. identify several local species examples

Skills

- a. describe the main characteristics and evolutionary trends of several major groups;
- b. identify a number of distinctive species;
- c. trace how Eukaryotes arose from Prokaryotes;
- d. describe the structure of a generalised higher plant and identify features of taxonomic importance;
- e. identify the common characteristics of Fungi and classify them into unique categories;
- f. classify seedless and seed plants.

Mode of Delivery

This module adopts a blended approach to teaching and learning. Information related to the structure and delivery of the module may be accessed through the IfE Portal. For further details, kindly refer to the Teaching, Learning and Assessment Policy and Procedures found on the Institute for Education's website.

Assessment Methods

This module will be assessed through: Research Assignment and Online Tasks/Reflections.

Suggested Readings

Core Reading List

1. Raven P.H, Evert R.F. & Eichhorn S.E., (2012), *Biology of Plants*, 8th Edition, W. H. Freeman.
2. Briffa, M. (2002). Some additions to the macrofungi of Malta. *The Central Mediterranean Naturalist*, 3(4), 197-202 2)
3. Lanfranco, E. (1979). Seed dispersal in Maltese plants. *Hyphen*, 1(6), 30-34 3)
4. Barnes, R.S.K. (1998) – *The Diversity of Living Organisms*. Blackwell