



## Hands on Functional Diversity: from Ecological Indicators to Ecosystem Services

**Lecturers/Organizers:** Alice Nunes (Univ. Lisboa), Paula Matos (Univ. Lisboa), Laura Concostrina-Zubiri (Univ. Lisboa), Pedro Pinho (Univ. Lisboa), Margarida Santos-Reis (Univ. Lisboa), Cristina Branquinho (Univ. Lisboa).

**Note:** This course will be given remotely

**Date:** May 16<sup>th</sup>-20<sup>th</sup> 2022

**Duration:** 36 hours

**Schedule:** 9:00-17:30; Lectures/Computer Lab – 5 days

### **Objectives:**

Under the general framework of Global Change Ecology, the goal of this course is to provide the participants with the most recent and practical knowledge on the use of Functional Diversity. This includes the selection of functional traits and calculation of Functional Diversity Indexes. Examples of the application of this knowledge will be given regarding Ecological Indicators and Ecosystem Services.

The specific objectives are:

- To give a general overview on global change drivers and point out the needs of current and future studies on Ecology
- To synthesize the most useful methods and tools for Ecosystem Services assessment, focusing on Ecological Indicators
- To allow the participants to apply the acquired knowledge on case study data (participants' data or data provided by the organizers), using R software. Examples of calculation with other software will also be provided (e.g. PC-ORD)

## **PROGRAM**

### **Monday**

09:00-09:30 Welcome session and program presentation

09:30-12:30 Ecological Indicators: background

Link to Ecosystem Services

12:30-13:30 Lunch

13:30-17:30 Personal project: presentation

### **Tuesday**

09:00-12:30 Functional Diversity Indices: theory and methods

Database management

12:30-13:30 Lunch

13:30-17:30 Computer Lab – personal project

### **Wednesday**

09:00-12:30 Computer Lab – personal project

12:30-13:30 Lunch

13:30-17:30 Computer Lab – personal project

### **Thursday**

09:00-12.30 Case studies from cE3c

12:30-13:30 Lunch

13:30-17:30 Preparation of presentation of personal project

### **Friday**

09:00-12.30 Personal project: results and discussion

12:30-13:30 Lunch

13:30-17:00 Personal project: results and discussion

17:00-17:30 Closure

This course can have a recognition of 6 ECTs for FCUL PhD students enrolling in it as part of their first doctoral year. These students need to deliver two reports after the course. For students only requiring 5 ECTs recognized in their specific PhD programmes the last 3.5

hours of the course are not mandatory, they need to deliver only the main report and the certificate will be on 'Topics in Hands on Functional Diversity'. Such report(s) are also advised for other students requesting creditation of the course in their institutions.

**Nº (min, max) students:** 10-20

**Minimal formation of students:** Bachelor in Biology, Natural Science or related areas

**Directed to:** MSc or PhD students in Biology, Environmental Sciences, Ecology or related areas, postdocs and professionals working in related topics.

### **FEE**

Free for 1st year PhD students in Doctoral programmes at FCUL (e.g. Biologia), Biodiversity, Genetics and Evolution (BIODIV UL; UP), Biology and Ecology of Global Changes (BEAG UL, UA) and Sustainability Science (UL, several institutions), when the course counts credits for their formation, in which case the delivery of a final report done after the course is mandatory; the course is also free for more advanced PhD students of the BIODIV programme (ULisboa or UPorto); 30 € for more advanced PhD students of cE3c of other programmes; 60 € for PhD students of the PEERS network (CFE); 105 € for FCUL Master students and unemployed; 160 € for BTI, BI and other PhD students; 230 € for Professional and postdocs.

When the maximum number of students is reached, 10 vacancies will be available for non-paying 1st year PhD students mentioned above, being, by order of preference students from: 1) cE3c; 2) BIODIV (not from cE3c); 3) FCUL (not from cE3c); 4) Sustainability Science (not from cE3c or FCUL); 5) BEAG (not from cE3c or FCUL).

**Deadline for applications:** April 15<sup>th</sup> 2022

Candidates should send to Alice Nunes (amanunes@fc.ul.pt) a short CV and motivation letter explaining why they are interested in the course. The cv and letter should be named as *1st-lastNAME-CV.pdf* and *1st-lastNAME-ML.pdf* (that is personalize the name of each file with your first and last name).

**In the email please add the following information:**

Full Name:

E-mail:

Phone:

Professional activity: Professional/Postdoc, BTI, BI (or other non-post-doc research grant), PhD student (with/ without scholarship), Lic. (Bachelor)/Master student

PhD student of the 1st year of a Doctoral programme at FCUL, BIODIV (FCUL/FCUP), or BEAG (FCUL or UA)?

If yes to the above question, PhD student doing the Course to count credits for 1st year?:

PhD student of cE3c or CEF (Centro de Ecologia Funcional)?:

Name of the PhD programme: