

Advanced course on PHENOTYPIC EVOLUTION: causes and consequences of morphological variation

Instructors: Ylenia Chiari, Antigoni Kaliontzopoulou, Miguel A. Carretero, Alexandra Sá-Pinto, Arie van der Meijden

AIMS OF THE COURSE

Variation in the phenotype (e.g., morphology, physiology, etc.) offers the basis for the evolution and adaptation of populations and therefore species. In this context, morphology is a major component of the phenotype, because it is of central importance to the organism's interactions with its surrounding environment. The study of morphology is transversal to many biological fields, including taxonomy, physiology, ethology, ecology, and evolution. In this advanced course, we will focus on morphological evolution providing an overview of the causes and consequences of morphological variation, the tools available for investigating it and how these can be integrated with other information sources (i.e. experimental data on other phenotypic components, molecular and developmental biology, phylogenetics, quantitative genetics, GIS) to test scientific hypotheses in ecology and evolution.

GENERAL STRUCTURE OF THE COURSE

The course will be divided in three main sections, including a first theoretical part focusing on the mechanisms that generate morphological variation and how this variation is correlated with distinct performances in functions, followed by an overview of the tools available to study such variation and finally the examination of study cases where the theoretical bases and the methodological tools are applied to answer scientific questions. The course will be opened and closed by practical exercises to understand what morphological variation is and how to use it to test different scientific hypotheses.

The course will take place on April 3, 4, and 5 during three full days, with a morning session from 10-13.00 and an afternoon session from 14.30-17.30.

The course will be limited to a maximum of 30 participants. To register, please provide a short motivation letter (max 1 page) indicating why you are interested in participating and

how this course would be relevant for your research or research interests. Participants will be selected based on their motivation letter. Letters of motivation should be sent by March 1st to **antigoni@cibio.up.pt**. Registration will be free for CIBIO students of the Master and PhD Program in Biodiversity, Genetics and Evolution. A registration fee of 25 or 50 euros will be applied to students outside the CIBIO and to Postdocs and Researchers (including those of the CIBIO), respectively.