



Faculdade de Ciências da Universidade de Lisboa



Biodiversity and Plant Evolution

Organized by: Centre for Ecology, Evolution and Environmental Changes (<http://ce3c.fc.ul.pt>) and Museu Nacional de História Natural e da Ciência –MUHNAC (<http://www.museus.ulisboa.pt>).

Teachers: Helena Cotrim and Manuela Sim-Sim (coordinators), Adelaide Clemente, Ana Isabel Correia, Cecília Sérgio, César Garcia, Joana Brehm and Maria Amélia Martins Loução (researchers at Museu Nacional de História Natural e Ciência and/or ce3c).

Calendar: 23-27 January 2017

Duration: 36 hours (TP) of lectures and practical sessions

Schedule: 9h-12h30 and 14h-17h30, Monday-Thursday; 9h-13h and 14h-18h Friday

Objectives

On completion of the course, the students shall have acquired the following knowledge and understanding:

- Describe the main evolutionary acquisitions on groups of the plant kingdom and its adaptive significance.
- Comprehend the modern plant phylogeny and its sources of information.
- Explain the underlying evolutionary mechanisms of diversity and speciation in the plant kingdom.
- Describe the variety of pollination syndromes, reproductive systems and population structures present in the plant kingdom, and explain the mechanisms underlying this diversity.
- Explain and critically analyse how the genetic diversity and evolutionary potential of plant populations are influenced by phenomena like phenotypic plasticity, seed banks, hybridization, polyploidy and postglacial colonization history.
- Formulate hypotheses and propose methods when studying evolutionary phenomena in wild plant species.

General Plan

1. Evolutionary acquisitions in land plants (Embryophytes).3 h
2. Phylogeny of land plants. Contemporary sources of information for land plants systematic.4 h
3. Evolutionary processes and plant population structures. Phenotypic plasticity and adaptation. Ecotypes and clines. 2 h
4. Postglacial colonization history of plants in Europe and Atlantic islands. Genetic and biogeographic consequences. Phylogeography.3 h
5. Pollination and reproductive biology. Plant mating systems. Reproductive costs and strategies in the plant kingdom. Selective processes associated with fertilization and seed development. Evolutionary pressures shaping seed traits 3 h
6. Allopatric and sympatric speciation in the plant kingdom. Speciation through hybridization and chromosomal changes. Species concepts.2 h
7. Plant life histories: reproductive strategies and seed ecology: Biogeographical and evolutionary aspects of seed dormancy 2 h
8. Biodiversity and Conservation Biology of plants:
The Convention on Biological Diversity and the Global Strategy for Plant Conservation 3 h

Role of Natural History Museums in plant Biodiversity Conservation 3 h

Plant ex-situ conservation 3 h

Biodiversity and plant Conservation Biology 2 h

9. Theme presentation 6 h

Location: Museu Nacional de História Natural e Ciência, MUHNAC. Rua da Escola Politécnica 56/58. 1250-102 Lisboa.

Nº (min, max) students: 6-10

Minimum background: bachelor degree in Biology or related areas

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

Fee: free for 1st year PhD students in the Doctoral program in Biology (FCUL), Biodiversity, Genetics and Evolution (BIODIV UL; UP) and Biology and Ecology of Global Changes (BEAG UL, UA) when the course counts credits for their formation, in which case the delivery of a final report done after the course is mandatory; 40 € for PhD students from institutions of the PEERS network (cE3c, CFE); 80 € for FCUL Master students and unemployed; 130 € for BTI, BI and other PhD students; 180 € for Professional and postdocs.

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

Deadline for applications: 8 January 2017

Candidates should send a short CV and a motivation letter to Helena Cotrim at the following email address: hmcotrim@fc.ul.pt

