**Job Description:** Estación Biológica de Doñana (EBD)

| **Role**: Research Assistant  **Website**: [www.ebd.csic.es](http://www.ebd.csic.es/inicio) | **Location**:  Estación Biológica de Doñana CSIC (EBD)  C/ Americo Vespucio, s/n, 41092, Isla de la Cartuja, Sevilla |
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**Company Description**:

Doñana Biological Station is a public research institute belonging to the Consejo Superior de Investigaciones Científicas, CSIC, within the area of Natural Resources. Our primary mission is to carry out multidisciplinary research at the highest level, directed at understanding, from an evolutionary point of view, how biodiversity is generated, how it is maintained and damaged, in addition to the consequences of its loss and the chances of their preservation and restoration. Furthermore, it also promotes the transfer of scientific knowledge to society. The institute consists of a main building in Seville, which has an innovative Stable Isotope Laboratory (LIE) and two field stations, the ICTS Doñana Biological Reserve, (Doñana Natural Area, Almonte, Huelva) and Roblehondo Field Station (Parque Natural de las Sierras de Cazorla, Segura and Las Villas).

**Tasks to be performed:**

This project is called *Introduction to plant evolutionary ecology and epigenetics*. Rapid environmental changes are shifting the structure and functioning of ecosystems worldwide. Improving our understanding of how biological diversity and ecosystem services are maintained is one of the most pressing challenges for scientists. One key mechanism that is recognized to enhance the evolutionary and persistence potential of the populations is phenotypic plasticity, which is the ability of genotypes to express different phenotypes in response to the environment (from short-transient modifications to be inherited across generations or transgenerational effects). Along other mechanisms, epigenetic modifications such DNA cytosine methylation, which influence gene expression changes without altering the DNA sequence, are known to control these phenotypic adjustments. Knowing the plasticity of different species (or populations within species) and understanding the mechanism responsible can help us predict population responses to changing drivers and guide preventive conservation measures.

The main goals of the student will be assisting on experiments conducted in greenhouse/climatic chamber measuring functional traits and plant phenotypes to quantificate species-level phenotypic plasticity under different environmental factors and whether DNA methylation mediates them. The student will learn concepts of experimental design, methods of plant evolutionary and functional ecology (measure and estimate phenotypic/functional traits and fitness), as well as be introduced to molecular (epi)genetics. Student’s training will also benefit from the possibility to attend the weekly seminars held at EBD, and potential field work. We offer two student projects, in which the student could undertake three different sets of tasks:

•Applying different ecological treatments to the experimental designs: e.g. inducing water-stress, quantifying real and simulated herbivory.

•Harvesting and measuring phenotypes (date of flowering, number of inflorescences, number of flowers/inflorescence, flower size, leaf length, leaf specific mass etc.), analysis of insect feeding behaviour.

•Obtaining molecular samples by assisting in DNA extraction for quantifying epigenetic contribution of plant-herbivore interaction. The extracted DNA will be used for library preparation.

**Required Applicant Profile:**

EBD are seeking graduates in animal behaviour, biology, botany, ecology, zoology or related fields to carry out a 13-week internship at their research institute in Seville, Spain. Participants will be encouraged to attend weekly seminars hosted by the institute. Spanish language skills are not necessary but would be an asset.