

**Genetic Monitoring of Wild Carnivores**  
**Dott. Marco Galaverni, WWF Italy**  
**Course outline**

4 CFU in total (2 CFU lectures and 2 CFU practical activities)

Wild carnivores are mostly elusive and distributed across large home ranges at low densities. Therefore, classical field methods require extensive effort to gather information on presence/absence of the species and are often ineffective in obtaining more detailed information. Genetic monitoring, starting from almost any biological material, even from non-invasive sources, can provide excellent tools to monitor wild carnivore species.

In this course, theoretical lessons will be followed by case studies and state-of-the art papers to instruct the students with the general background on genetic monitoring techniques and the type of data they can provide, starting from sampling design and sources of biological materials, selection of markers, analysis pipelines and evaluation of results, including those derived from genome-wide data. In particular, we will see these steps applied in three iconic Italian carnivore species: the wolf, the brown bear and the wild cat.

Finally, we will discuss the possible implications of results obtained from the genetic monitoring of those species.