Effects of oxygen deprivation on developmental time

The development of cold blooded organisms is highly dependent on environmental parameters. Some species however have evolved in a way that allows them to cope with differences in the environment without compromising overall survival. One of this species is the Fire Salamander (Salamandra salamandra). This species has a distribution range that covers most of Europe and across its entire range females deposit larvae in primary springs; one exception is known in Germany where females can also deposit larvae in ponds. Streams and ponds have different ecological profiles (e.g. dissolved oxygen content), but still, individuals can make use of both environments. Previous studies have found that while there is no genetic differences between stream and pond breeding salamanders, there are some morphological, behavioral and transcriptomic differences. An experiment has been done in which freshly deposited larvae were allowed to develop until metamorphosis under different dissolved oxygen profiles and time and body condition were recorded. The objective of this project is to determine whether stream and pond breeding individuals present different levels of plasticity in their ability to cope with suboptimal amounts of dissolved oxygen and how they adapt to them.

Methods:
This project comprises the analysis of data of a behavioral experiment with Salamandra salamandra. Student will have access to all data from this experiment and will organize and perform basic statistical analysis on the dataset to determine differences in body condition across the experimental time and treatments, and differences in developmental time across treatments. Basic knowledge of R is beneficial. The expected outcome of this project is a peer-reviewed publication.