PhD student position

Individuals with any scientific background (i.e., including evolutionary, molecular, or systems biology, mathematics, physics, chemistry, computer science, statistics, and its hybrids) with a genuine interest in evolutionary questions and quantitative approaches are welcome to apply to an available ERC-funded PhD position under the project “FIT2GO – A toolbox for fitness landscapes in evolution”.

Building on evolutionary theory, research in the lab revolves around quantifying epistasis across levels of biological organization and across environments, and to study its impact on the population genetics of adaptation and hybridization. We approach these questions through a combination of mathematical modelling, computer simulations, statistical method development, experimental evolution, and data analysis and interpretation. The long-term goal lies in understanding how ecology, evolution, and molecular constraints shape genomes.

The PhD project will be developed in collaboration with the respective candidate and may be focused on either or several of the following topics:

- develop mechanistic and statistical models of fitness landscapes across environments
- quantify intra- and intergenic epistasis and its consequences for adaptation
- infer distributions of fitness effects across genetic backgrounds and environments (experimentally and theoretically)
- quantify population dynamics and genetics under clonal interference and epistasis
- develop statistical methods for experimental-evolution data analysis
- study the effects of epistasis on diversity and divergence
- develop approaches to predict the cost of antibiotic resistance across environments (in collaboration with Isabel Gordo, IGC)
- test predicted mechanisms of drug resistance in influenza experimentally (in collaboration with Maria João Amorim, IGC)
Application procedure

Applications should be sent by email to evoldynamics[@]gmail.com and include a letter of motivation, a CV, and names and contact information of at least two referees. The anticipated starting date is 1 September 2019. The student will be associated with the IGC’s PhD Programme in Integrative Biology and Biomedicine and has to fulfill the according selection criteria; parallel application to the PhD Programme through the respective online platform is encouraged but not necessary. Review of applications will begin on February 15, and the call remains open until the position is filled. For more information see https://evoldynamics.org/positions/