



UNIVERSITÉ DE  
NEUCHÂTEL

Laboratory of Evolutionary Genetics  
Institute of Biology

## PhD Student positions in Evolutionary Genomics of Pathogens

At the University of Neuchâtel, Switzerland

The Laboratory of Evolutionary Genetics is searching highly motivated PhD students to work on the evolutionary genomics of fungal plant pathogens. Pathogens in agricultural ecosystems pose serious threats to global food security. At the same time, pathogens offer also many of the most fascinating and well-studied examples of adaptive evolution because evolutionary change is observable within very short time scales.

Our lab investigates the molecular basis of adaptation in fungal pathogens, the evolution of virulence in pathogen populations and mechanisms of genome evolution facilitating rapid adaptation. Our main model is a fungus (*Zymoseptoria tritici*) that causes a widespread disease on wheat. In our research, we work with natural field populations, use a variety of experimental approaches in the laboratory, greenhouse and the field, perform whole-genome population sequencing and assemblies of complete genomes. We are a diverse group with backgrounds in evolutionary biology, genomics, plant pathology and microbiology. We put a lot of emphasis on team work and scientific discussions. You can learn more about our research and recent publications on our website (<http://www.pathogen-genomics.org>).

Available PhD projects include genome-wide association studies to elucidate the genetic architecture of virulence and abiotic stress tolerance. For this, we will analyze populations from natural fields and identify gene variants that enabled the pathogen to breakdown resistance of local wheat varieties. We will also perform large-scale ecological genomics studies to identify the mechanisms and trade-offs governing host adaptation in the field. Finally, we will investigate the mechanisms driving rapid chromosomal evolution by analyzing completely assembled pathogen genomes. The PhD projects are in collaboration with research groups at the University of Neuchâtel, the ETH Zurich and the Agroscope.

The Institute of Biology ([http://unine.ch/biol/page-7860\\_en.html](http://unine.ch/biol/page-7860_en.html)) offers a highly dynamic and diverse research environment and is located at the beautiful Lake Neuchâtel with views of the Swiss Alps. The city of Neuchâtel is centrally located in Switzerland and most other cities can be reached within 0.5 - 2 h. The working language in the group is English.

Candidates must hold a MSc degree in biology and have a strong interest in combining evolutionary biology and genomics. Experience in programming and/or statistical analyses (e.g. in R) is not required but is a plus. We expect group members to have strong social skills and actively engage in collaborations. Positions are available from January 2017 but later dates are also possible. Applications will be reviewed starting in November 2016 but the positions remain open until filled.

Applicants should send documents (as a single pdf) including:

- A cover letter stating their research interests and motivation to apply.
- A complete curriculum vitae.
- A reference letter of at least one referee.

Any inquiries about the positions and full applications should be sent to:  
Daniel Croll ([daniel.croll@usys.ethz.ch](mailto:daniel.croll@usys.ethz.ch)).

The University of Neuchâtel is committed to promoting equality of opportunity.