

## **Job description**

We are looking for a PhD student for the topic “**Mathematical modelling of adaptation and acclimation in marine ecosystems**”. The PhD scholarship is available in the field of spatio-temporal modelling under the supervision of Prof. Bernard De Baets, Prof. Jan Baetens and Dr. Aisling Daly, at the research unit Knowledge-Based Systems (<http://www.kermit.ugent.be>) at the Faculty of Bioscience Engineering. The research will lead to the title of Doctor of Bioscience Engineering.

This topic is part of the interdisciplinary project “**Assessing the biological capacity for marine ecosystem resilience: Acclimation and adaptation in a rapidly changing environment**” (REACT), which is funded by Ghent University. The REACT project focuses on how global change alters marine ecosystems and the services they provide. Whether these services are at risk depends on the resilience of organisms, populations and communities. The project combines experimental and field-based evidence with spatially explicit models, to predict the resilience of populations and communities under realistic future ocean scenarios, and to understand the consequences for ecosystem functioning.

The student will develop and analyze spatio-temporal models to unravel the potential of marine organisms and communities to acclimate, adapt and/or disperse, and to retain ecological functioning under different climate scenarios. Such climate change impacts have typically been studied at the species level. However, the variations between individuals within a species can have important ecological consequences, while their study requires more sophisticated modelling and analytical techniques. The impacts and responses to climate change should be integrated across the different levels of ecological organization, from genes to individuals to species to ecosystems. This will call upon population-level models (such as partial differential equations) as well as individual-based and patch models.

## **Profile of the candidate**

The ideal candidate for the position has the following profile:

- An MSc degree in Mathematics, (Bioscience) Engineering, Computer Science, Physics, or equivalent – candidates from outside Belgium are welcome, but they are expected to move to Ghent for four years
- An interest in mathematical modelling and ecology
- Ample experience in at least one programming language (Matlab, R, Python, etc.)
- A good knowledge of spatio-temporal modelling paradigms is a strong asset
- Fluent in English (speaking and writing)
- Is self-motivated
- Works well in a team

The PhD position will begin at the earliest on June 1<sup>st</sup> 2019.

## **How to apply?**

Candidates should submit their application by email to [ruth.vandendriessche@ugent.be](mailto:ruth.vandendriessche@ugent.be) as a single PDF file containing:

- CV
- Transcript of records
- Letter of motivation

Applications should be submitted by May 1, 2019.

Questions concerning the job description can be directed to Prof. Jan Baetens at [jan.baetens@ugent.be](mailto:jan.baetens@ugent.be).