



# PhD Research Fellowship in Ecological and Evolutionary Dynamics

## About the position

Position as PhD Research fellow in Ecology and Evolutionary Dynamics available at the Department of Biosciences, Centre for Ecological and Evolutionary Synthesis (CEES), University of Oslo (UiO).

The candidate will be supervised by [Yngvild Vindenes](#), and co-supervised by [Øystein Langangen](#) and [Torbjørn Ergon](#).

The fellowship is funded by the Department of Biosciences. The position is for a period of 3 years without teaching duties, or for a period of 4 years including 25 % duty work contingent on the qualifications of the candidate and the teaching needs of the department.

No one can be appointed for more than one PhD Research Fellowship period at the University of Oslo.

Starting date no later than 01.10.2019.

## Job description

"Effects of individual heterogeneity on ecological and evolutionary dynamics in a changing climate".

The main topic of this PhD project is how individual heterogeneity affects ecological and evolutionary dynamics in a changing climate. By extending and applying recent demographic models for trait-structured populations, the successful candidate will investigate how various kinds of heterogeneity modifies biological responses to external drivers like climate variables. The project is largely theoretical, but includes opportunities for applying the models on empirical data from study systems of size-structured fish (e.g. pike, cod, brown trout). The successful candidate will develop specific research questions together with the team of supervisors, and will be included in a dynamic group with other PhD candidates and post docs working on related topics.

Individual heterogeneity refers to differences among individuals that lead to structuring of populations. This heterogeneity can arise from a number of sources, including (but not restricted to) genetic variation, early life environmental effects, spatial heterogeneity, and maternal effects. When individual heterogeneity is not accounted for (hidden heterogeneity), important dynamical properties calculated from the model, such as extinction risk, can be affected. So far, few studies have considered how heterogeneity can modify population responses to changing environments, or to other external drivers such as harvesting. Within this project, the candidate will extend and apply stochastic demographic trait-structured models (integral projection models and matrix models) to investigate such responses. Because individual trait variation is often in part genetic, these models will allow investigation of eco-evolutionary dynamics in rapidly shifting environments. Some of the outputs of interest include the stochastic population growth rate and its sensitivities (selection pressures), the probability of extinction, time to extinction, and characteristics of the mean life history (generation time, lifetime reproduction).

A better knowledge of how populations respond to environmental change is essential to develop conservation and management strategies. The underlying mechanisms to such responses are still poorly understood for most species, and individual heterogeneity, in various forms, can play a major role in mediating them. This project will contribute to resolve this important issue, while giving the candidate a unique opportunity to obtain a broad scientific training.

## Host institution

The PhD project and training will be based at the Centre for Ecological and Evolutionary Synthesis (CEES), Department of Biosciences, University of Oslo. CEES provides a stimulating research environment with many young international and Norwegian scientists working on a variety of theoretical and empirical topics within bio-economics, ecology, evolution, population genetics, genomics, phylogenetics, molecular biology, and statistical methodology. Information about the centre can be found at: [www.cees.uio.no](http://www.cees.uio.no).

## Qualification requirements

The Faculty of Mathematics and Natural Sciences has a strategic ambition of being a leading research faculty. Candidates for this fellowship will be selected in accordance with this, and are expected to be in the upper segment of their class with respect to academic credentials.

In addition to meeting the formal requirements for admission to the PhD program, for this particular project the ideal candidate should meet the following points (applicants are encouraged to explain how they meet them in their application letter):

1. Master's degree within the field of Ecology, Evolutionary Biology, or another field relevant to the topic of the project.
2. A background and/or strong interest in modeling ecological and evolutionary dynamics. Experience with demographic models (matrix models or integral projection models) and/or stochastic models is considered an advantage, but applicants are not expected to have a background covering all of these aspects.
3. Strong motivation for pursuing a PhD in theoretical biology.

4. Strong interest in doing basic research, scientific writing and communication.

5. Good collaboration skills.

- Foreign completed degree (M.Sc.-level) corresponding to a minimum of four years in the Norwegian educational system
- Candidates without a Master's degree have until 30 June, 2019 to complete the final exam

#### Grade requirements:

The norm is as follows:

- The average grade point for courses included in the Bachelor's degree must be C or better in the Norwegian educational system
- The average grade point for courses included in the Master's degree must be B or better in the Norwegian educational system
- The Master's thesis must have the grade B or better in the Norwegian educational system
- Fluent oral and written communication skills in English

<http://www.mn.uio.no/english/research/phd/application/application.html>

## We offer

- Salary NOK 449 400 - 505 800 per annum depending on qualifications and seniority as PhD Research Fellow (position code 1017).
- Attractive [welfare benefits](#) and a generous pension agreement
- Vibrant international academic environment.
- Oslo's family-friendly surroundings with their rich opportunities for culture and outdoor activities.

## How to apply

The application must include

- Application letter, including a brief explanation of how the applicant meets the selection criteria above
- A brief account (one page, as a separate file) of the applicant's interest and motivation for applying for the position
- CV (summarizing education, positions, academic work, and scientific publications)
- Copies of the original Master's degree diploma and transcripts of records
- Documentation of English proficiency (only for some applicants, e.g. from non-EU/EEA countries)
- List of publications and academic work that the applicant wishes to be considered by the evaluation committee
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

The application with attachments must be delivered in our electronic recruiting system, please follow the link "apply for this job". Foreign applicants are advised to attach an explanation of their University's grading system. Please note that **all** documents should be in English or a Scandinavian language.

Applicants may be called in for an interview.

## Formal regulations

Please see the [guidelines and regulations](#) for appointments to Research Fellowships at the University of Oslo.

The purpose of the fellowship is research training leading to the successful completion of a PhD degree.

The fellowship requires admission to the PhD programme at the Faculty of Mathematics and Natural Sciences. The application to the PhD programme must be submitted to the department no later than two months after taking up the position. For more information see: <http://www.mn.uio.no/english/research/phd/>

According to the Norwegian Freedom and Information Act (Offentleglova) information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

The appointment may be shortened/given a more limited scope within the framework of the applicable guidelines on account of any previous employment in academic positions.

The University of Oslo has an [agreement](#) for all employees, aiming to secure rights to research results etc.

## Contact information

For further information please contact: Associate professor Yngvild Vindenes, phone: +47 228 54538, e-mail: [yngvild.vindenes@ibv.uio.no](mailto:yngvild.vindenes@ibv.uio.no)

For questions regarding the recruitment system please contact: HR-officer Nina Holtan, phone: +47 228 54424, e-mail: [nina.holtan@mn.uio.no](mailto:nina.holtan@mn.uio.no)

## About the University of Oslo

**The University of Oslo** is Norway's oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

**Department of Biosciences (IBV)** is one of nine departments at the Faculty of Mathematics and Natural Sciences. Research in the department is organised in five sections covering topics within biochemistry, molecular biology, physiology, cell biology, genetics, aquatic biology, toxicology, ecology, and evolutionary biology. Education across these topics is offered for around 380 bachelor, 170 master, and 75 PhD students.

With 52 permanent professors/associate professors, post-docs, researchers, technical, and administrative personnel, the Department has a total staff of 340 from more than 30 different countries. The Department aims to maintain high international standards within both research and

teaching. The new bachelor program in bioscience is the first of its kind to include programming and computational modelling as core elements.

Jobbnorge-ID: 166299, Søknadsfrist: Avsluttet