

FULL-TIME FACULTY POSITION IN ECOLOGICAL MODELLING OF AQUATIC ECOSYSTEMS

Field : Sciences

Discipline : Ecology, water science

Faculty of Sciences

Department: Ecole Interfacultaire de Bioingénieurs (EIB) - Interfaculty School of Bio-engineering

Required Qualifications: PhD Degree (with doctoral thesis) in “Sciences” or in “Agricultural Sciences and biological engineering” or equivalent

Professional Profile:

The candidate must be an expert in ecological modelling of aquatic ecosystems and will possess excellent research and communication skills as demonstrated by high-quality scientific papers in peer-reviewed international journals. The candidate must demonstrate an intense research activity as well as pedagogic facilities for teaching. The candidate must demonstrate an ability to teach both the various aspects of ecological modelling of aquatic systems but also the basics of ecological functioning of aquatic systems. He/she will have the desire to develop an independent research and should demonstrate its ability to obtain financing to support his (her) research team. Supervision of undergraduate and doctoral students will be among the priority tasks of the applicant.

Candidates should have at least the equivalent of one academic year of postdoctoral experience abroad (outside the country of PhD-studies).

Career stage: Experienced researcher (5–10 years experience) or more experienced researcher (> 10 years experience)

He or she is required to master the French language or to show the commitment to learn French during the third academic year and teach in French from then.

Vacancy n° 14/A009

Applications must be received no later than 15/03/2014

Additional information at

<http://www.ulb.ac.be/vacances/academiques/index.html>

1. ➤ **Description of position:** specialist in ecological modelling of aquatic ecosystems (marine and/or limnic), the candidate will conduct scientific research of international standing in the field, develop an independent research team and ensure the financing of it. Teaching activities concern primarily the various aspects of ecological modelling of aquatic ecosystems, the basics of ecological functioning of aquatic ecosystems and sustainable management of aquatic ecosystems

The successful candidate will be invited to apply for a grant from the European Research Council (ERC). This application will be supported by the Department of Research of ULB.

- **Description of scientific and pedagogical objectives:** both ensure the teaching of ecological modelling of aquatic ecosystems, but also more generally the structuring mechanisms and ecological functioning of aquatic systems and the management of such ecosystems in a sustainable development perspective. Research activities related to the vacancy should be of international scientific level and lead to the development of an independent research team. The research should also encourage the establishment of links with other researchers of the Interfaculty School of Bioengineering and with ULB researchers in Sciences, Applied Sciences and human and social sciences.

➤ **Research domain: Ecological modelling of aquatic ecosystems**

Water and biological resources associated with continental and marine aquatic environments have always been at the forefront of natural resources vital to humanity. The services are endless and they belong to the field of health, energy, climate, fisheries, transport and tourism. Civilizations have based, for a long time, their development on the use of water and aquatic environments without worrying about the long-term maintenance of their quality or their preservation. The combined effect of demographic increase and economic growth has significantly increased the water demand while the pollution of rivers, lakes, groundwater, estuaries and coastal areas resulted in trophic dysfunctioning that alter the biodiversity and the productivity of these ecosystems as well as biogenic elements cycles. The construction of complex mathematical models for predicting ecosystem functioning and quality of aquatic environments in response to climatic and anthropogenic change is a way to incorporate this complexity and provides a scientific tool for decision policy in purification and maintenance of biodiversity and associated resources.

The research work of the recruited Professor in the field of ecological modelling of aquatic ecosystems will be particularly oriented towards the study of natural aquatic systems (marine and/or limnic) where mathematical models will answer fundamental questions on the functioning of the ecosystem and predict their evolution in response to environmental change scenarios (eg anthropogenic pressure, pollution, climate change).

Activities of research and development related to this chair will be conducted in the areas of fundamental and applied research. The development of complex ecological models (mechanistic and stochastic) based on knowledge of physiological processes and characteristics of the species will seek the fundamental study of mechanisms structuring/destructuring of ecosystems and their implication on resources and biodiversity, and enable the set of indicators of ecosystem disruption, helpful management. In addition, ecological models will also be used to describe and optimize the performance of artificial aquatic systems (fishes farms, lagoons, bioreactors, ..).

➤ **Course charge during the first year of recruitment:**

- BING-F-410 Structure, évolution et fonctionnement des écosystèmes aquatiques - 5 ECTS (nbre d'heures Th – 24h Ex – TP – 36h) (compulsory course in master 1 « Bioingénieurs Sciences et technologies de l'Environnement »)
- BING-F-410A Structure, évolution et fonctionnement des écosystèmes aquatiques - 3 ECTS (nbre d'heures Th – 24h) (option course in master 1 « Biologie des organismes et écologie »)
- BING-F-525 Modélisation des écosystèmes aquatiques 4 ECTS (nbre d'heures Th – 24h Ex – 24h) (compulsory course in master 2 « Bioingénieurs Sciences et technologies de l'Environnement »)
- ENVI-F-445 Fonctionnement et gestion des milieux aquatiques - 3 ECTS (nbre d'heures Th - 18h Ex – 12h, Excursions 6h) (with P. Servais) (compulsory course in master 1 « Sciences et gestion de l'environnement – orientation gestion de l'environnement »)

2. Teaching duties may be reviewed periodically and are subject to modification over time.
3. For additional information, please contact Professor Pierre Servais, President of the Interfaculty School of Bioengineering (phone : 32 2 650.59.95 – fax : 32 2 650.59.93 – e-mail : pservais@ulb.ac.be)
4. The application file should also include the following (incomplete files will not be considered):

- A curriculum vitae (a standard model can be downloaded at : <http://www.ulb.ac.be/tools/CV-type.rtf>)
- A text detailing the applicant's teaching practice and pedagogical approach
- A text of approx. 3500 characters outlining the applicant's future research project(s)
- A text of approx. 3500 characters giving an overview of the applicant's most important publications to date.

Candidates applying for several vacancies are required to send a separate file for each.

5. Please send a paper version of your application (incl. curriculum vitae) to the Chancellor of the University at: Recteur de l'Université libre de Bruxelles, avenue F. Roosevelt, 50 – CP 130 – 1050 Bruxelles (Belgium) and an electronic version to the Professor François Reniers, Dean of the Science Faculty at the following e-mail address: annick.gerlache@ulb.ac.be and to Professor Pierre Servais, President of the Interfaculty School of Bioengineering (phone : 32 2 650.59.95 – fax : 32 2 650.59.93 – e-mail : pservais@ulb.ac.be)
6. Prior to his/her appointment, should the successful applicant not belong to the teaching or research staff of the ULB, or is not working for the ULB as a fellow with tenure at the "Fonds National de la Recherche Scientifique" (National Research Foundation), the initial appointment will be for a limited term and will not exceed **5 (five) years maximum**, with the possibility of permanent tenure being granted at the end of this period subject to review by the University Board of Administrators.
7. Applications must be received no later than 15/03/2014.
8. Vacancy published online on: <Greffé>
Appointment due to take effect on: 01/10/2014
9. Internal administrative data :
n° de vacance : 14/A009
Poste au cadre : 13-B-PRO-023 (F) (1.00 ETP)
Références C.A. : <Greffé>