

FULL-TIME ACADEMIC POSITION IN AGROECOLOGY AND CROP/SOIL MICROBIOLOGY

FACULTY OF SCIENCES

Brussels Bioengineering School (Ecole interfacultaire de Bioingénieurs)

Reference : 2021/A040

Application deadline: 20/02/2021

Start date: 01/10/2021

Job description

Area of Research : Sciences - Euraxess 1. Agricultural Sciences – 16. Environmental Sciences. Sub Research Field : Euraxess – 1.6 Soil Science - 16.2 Ecology

Educational and scientific goals :

➤ Description of Position :

The successful candidate will have expertise in agroecology and crop/soil microbiology to develop scientific research combining agroecological experimentation and microbiome characterization. ‘On-field’ research activities are considered critical to better formulate questions and needs directly emerging from the field, and to access the "natural" crop/soil microbiome in all its complexity. The successful candidate will have to lead research in this field with international collaborations and outcomes and secure funding for his/her activities. Teaching activities will include courses focusing on agroecology and microbial ecology and the underlying fundamental prerequisites. Participation in the supervision of student projects, laboratory practicals and exercise sessions will also be expected. The teaching load will grow progressively in the first years in order to give time to the successful candidate to develop his/her research activities and build a team.

The successful candidate will be invited to apply for a grant from the European Research Council (ERC) and be expected to apply for sources of outside funding (FNRS, Europe, Regional funds, etc...) enabling him/her to develop their research. The ULB Research Department will assist with these applications.

➤ Description of Scientific and Pedagogical Objectives:

The successful candidate’s teaching activities should complement the existing bioengineering teaching activities and will be expected to develop learning activities dealing with agroecology and crop/soil microbiology/microbial ecology within an agroecological transition framework.

Research activities should be of international level and should reinforce or favor synergies within ULB with existing academics (from ULB and partner universities at the national & international levels, as well as regional high schools) and non-academic actors' networks involved in the agroecological transition of farms.

These collaborations should lead to the positioning at an international level of the Bioengineering School in the field of innovative agroecological practices and crop microbiology.

➤ Field of Research: " Agroecology and crop/soil microbiology "

The research should focus on understanding the interconnection between crop plants and the soil-root microbiome in a context of development of innovative agroecological practices. This interdisciplinary approach could be targeted, for example, to develop expertise in the differentiation of crop varieties in terms of mycorrhizal selectivity, analyze crop disease suppression processes in soils under contrasting management systems through their microbiological differentiation, develop innovative indicators of soil health to support farmers in transition, or unravel organic nutrition of crops in association with their microbiome under contrasting agricultural input and field management strategies, including agroecological methods (intercropping, agroforestry, conservation agriculture, etc.).

➤ Teaching duties:

New courses dedicated to the field of expertise of the successful candidate will be opened, at the Master level, on:

- soil ecology and crop health
- organization of field excursions and experiments hosted by farms in transition

Upon appointment the successful candidate will be invited to participate actively in existing courses in the bioengineering curriculum both at the bachelor and master levels. Depending on his/her expertise, the successful candidate could be asked to participate in one or more of the following courses, for example:

BING-F-202	Agro-écosystèmes et systèmes agraires (Agroecosystems and farming systems)
BING-F-301 microbiology)	Microbiologie générale et environnementale (General and environmental
BING-F-305	Agro-écologie (Agroecology)
BIOL-F-309	Ecologie générale (General ecology)
BING-F-430 agroecology)	Recherche et développement en agroécologie (Research and development in
BING-F-431	Innovations agroécologiques et production alimentaire (Agroecological innovations and food production)

Teaching duties may be reviewed periodically and are subject to modification over time.

Qualifications required :

PhD Degree (with doctoral thesis) in “Sciences” or in “Agricultural Sciences and Biological Engineering” or equivalent qualification.

Skills required

- Applicants should have at least 4 years of research experience at the time of their recruitment.
- Post-doctoral experience and an excellent scientific record are a plus.
- Exchange periods outside of the applicants’ home institution (during or after their PhD) will be taken into consideration when evaluating applications.
- Candidates will be expected to teach in English and French. If they are not proficient in one of these two languages at the time of appointment, a three-year period may be granted following their appointment to enable them to achieve the required level of language proficiency.

To promote the development of innovative agroecological practices related to the analysis of phylogenetic and functional microbial diversity associated with crop plants, the Brussels Bioengineering School opens a position in **agroecology and crop/soil microbiology**.

This position will strengthen existing research teams of the Brussels Bioengineering School.

The candidate for the chair “Agroecology and crop/soil microbiology” must have expertise in techniques used to study the diversity and activity of microbial communities in relation to plant-soil interactions in agroecosystems. These encompass isolation/cultivation methods adapted to crop/soil microbes, activity measurements using fluorescent/radiolabeled/stable isotope tracers, molecular methods for investigating (phylo)genetic diversity, or microscopy techniques such as confocal laser scanning microscopy and/or in-situ fluorescent hybridization (FISH). Expertise in "-omics" techniques (metagenomics, metatranscriptomics, metaproteomics and/or metabolomics) will be an asset. He/she must have an experience in multi-actor and interdisciplinary research where what is learned in laboratory is translated to be applied in the field and where what is observed in the field is translated in laboratory questions. In this regard, field experience and fieldwork expertise will be considered as an advantage to guide researchers and stakeholders towards sustainable agricultural practices.

The candidate will work in close synergy with existing research teams in the Bioengineering School, the Faculty of Sciences and the Polytechnic School, particularly with research teams from the Agroecology and the Ecology of Aquatic Systems laboratories

- Required Languages :
 - **Français : (niveau : good – B2)**
 - **Anglais : (niveau: good – B2)**
- Required Research Experiences :
 - Agricultural Sciences (1) – Soil Science (1.6)
 - Environmental Sciences (16) – Ecology (16.2)
- Career Stage :
 - Experienced researcher (4 – 10 years including PhD)
 - More experienced researcher (> 10 ans years including PhD))

Interested ?

For more information, please contact Prof. Frédéric Debaste, Vice-President of the School of Bioengineering (phone: 32 2 650 6756 – e-mail: frederic.debaste@ulb.be).

Applications must be sent by e-mail to the rectorate of the Université libre de Bruxelles (rectrice@ulb.be) and to the faculty deanship (aff.acad.sciences@ulb.be).

They must include the following :

- an application letter
- a Curriculum vitae including a list of publications :
if you want you can complete a standard form via our website at <https://www.ulb.be/fr/documents-officiels/completer-votre-cv-en-ligne>. Once completed, it must be downloaded and attached to the application file.
- a 7,000-character report (4 pages) presenting the applicant's research activities and a research project, including how these will integrate into ULB's research teams
- a teaching dossier including a 7,000-character report (4 pages) on the applicant's previous teaching activities and a teaching project for the first five years in this position; these must be relevant to the faculty and to the teaching profiles for the programmes to which the applicant is to contribute
- a note on the applicant's international achievements and projects (no more than 4 pages)
- the names and e-mail addresses of five referees (respecting the gender balance) who may be contacted by those in charge of evaluating applications. These referees should not have conflicts of interest because of family or emotional ties.
- any relevant documents showing 4 years of research experience

The appointment to the academic staff of ULB is made at "Premier Assistant" level, if the candidate has had a PhD for less than eight years (on 1 October of the year of appointment). If the candidate has had a PhD for eight or more years, on 1 October of the year of appointment, then the appointment is made at "Chargé de Cours" level. As of their appointment, members of academic staff are authorised to use the honorary title of "Professeur".

Equal opportunities policy

ULB's personnel management policy is geared towards diversity and equal opportunities.

We recruit candidates on the basis of their skills, irrespective of age, gender, sexual orientation, origin, nationality, beliefs, disability, etc.

Would you like to be provided with reasonable accommodation in the selection procedure because of a disability, disorder, or illness? Do not hesitate to contact Marie Botty, the Gender and Diversity resource person of the Human resources Department - SPES (marie.botty@ulb.be). Be assured of the confidentiality of this information.

More details on the ULB gender and diversity policy are available at <https://www.ulb.be/en/about-ulb/gender-equality-at-ulb>.

You will find all the regulations relating to academic careers on our site at <http://www.ulb.ac.be/emploi/academique.html>.