

FULL-TIME ACADEMIC POSITION IN CHEMOMETRICS AND ANALYTICAL DATA ANALYSIS

FACULTY OF PHARMACY

Reference : 2024/A022 Deadline for applications: 31/05/2024 Starting date: 01/10/2024

Job description

Brussels offers the advantages of a multicultural capital at the heart of Europe and the comfort of a metropolis on a human scale, 1:20 by train from Paris, 1:30 from Amsterdam, 1:50 from London and Cologne. Working at ULB means working in a green, lively and stimulating environment. Internationally recognised, ULB covers all university disciplines, closely combining high-quality teaching and cutting-edge research. It organises 40 bachelor's degrees, 150 master's degrees and 3 Erasmus Mundus, more than 65 specialised master's degrees, has 6 Nobel Prize winners and participates in 20 doctoral schools where almost 2,000 doctorates are in progress. ULB is also committed to defending freedoms, independence and tolerance on a daily basis (find out more).

The academic position involves research and teaching activities on the subject of chemometrics and research data management applied to the biomedical, pharmaceutical and healthcare fields. The research activities will be carried out using the various analytical data available within the Faculty, and more specifically within the Pharmacognosy, Bioanalysis and Medicines Unit (RD3-PBM). This research unit is made up of 4 academics, 10 researchers and 4 technicians and includes an analytical platform with mass spectrometers and infrared spectroscopy instruments (as well as their coupling to microscopy or AFM). It is also developing metabolomics tools with chemometrics data processing. The academic position involves developing multivariate data analysis tools, which are essential both for developing analytical methods and for interpreting complex data. From a teaching point of view, the position requires a very good knowledge of analytical techniques as well as a mastery of mathematical tools, in particular statistics, in order to provide researchers and students with the basic skills useful for experimental planning and for the analysis of (bio)chemical, physico-chemical and health data. The research area corresponding to this post also fits into this perspective, with a logical extension of the concept to the optimisation of (bio)analytical measurement processes. This optimisation aspect involves the concept of chemometrics. You will need to master the following tools

- Design of experiment (multivariate components)
- Principal Component Analysis
- Validation

- Recursive decision methods (Decision trees)
- Neural networks
- Selection of non-linear predictors
- Graphical analysis of data

Innovative research projects will have to be proposed on a regular basis to the appropriate bodies (national and international) in order, in particular, to request the acquisition of cutting-edge instrumentation in line with the analytical needs of the Faculty of Pharmacy. This will require close collaboration with various research teams within the Faculty of Pharmacy.

This is a full-time position for a period of three years, with the possibility of a permanent appointment at the end of the three years, subject to a favourable opinion from the University authorities.

Research area: Biomedical and pharmaceutical sciences

Educational and scientific objectives :

Application of mathematical and statistical tools, particularly chemometrics, to the optimisation of chemical and pharmaceutical processes (separative and spectral methods, synthesis, formulation, etc.). Aspects relating to process validation, and more specifically the validation of analysis methods, are also involved. The research activities relating to the optimisation of processes and the analysis of results will support and respond as effectively as possible to the research needs of the various departments in the Faculty of Pharmacy.

Courses included in the course load at the time of recruitment :

MATH-J1xx: **Applied mathematics** in pharmaceutical sciences (24h THE, 24h EXE).

STAT-J201: Statistics applied to pharmaceutical sciences (THE 22h, EXE 26h).

TRAN-J201: Scientific English partim **project** (THE 6h, EXE 4h).

PHAR-J302: partim validation (THE 12h).

MEDI-J301: Physiopathology, elements of human pathology and epidemiology - Partim **Elements of** epidemiology (THE 8h EXE 4h).

TRAN-J311: Transdisciplinary project in drug analysis - Partim Seminar Validation (EXE 12h).

These teaching duties will not be offered to the candidate from the outset, but their teaching load will increase as and when the Faculty's needs change, in line with academic coordination.

Required title

Doctorate in Biomedical and Pharmaceutical Sciences, Sciences, Agricultural Sciences and Biological Engineering, Engineering Sciences, (Bio)Chemical Sciences, Computer Sciences, Public Health.

Skills required

- you have at least 4 years' scientific seniority at the time of joining.
- you can demonstrate post-doctoral experience and an excellent scientific record.
- your curriculum vitae shows a sustained research activity of a very high scientific level in the field of
 chemometrics in relation to analytical data in general and more specifically applied to the field of
 pharmaceutical sciences or health in general.
- if you have been mobile outside the institution where your doctorate was completed (during or after your doctoral period), this will be taken into account when assessing your application.
- if you are not fluent in French (level C1), an adaptation period may be granted, but you must be able to teach in French by the end of the third year following your appointment.
- Knowledge about Artificial Intelligence (AI) and the use of its tools are assets.

Interested?

Further information can be obtained from Pierre Van Antwerpen (telephone: +32 2 650.52.63 - e-mail: pierre.van.antwerpen@ulb.be).

The application file must be sent in electronic format, by sending a single e-mail to the Rectorate of the Université libre de Bruxelles (at rectrice@ulb.be) and to the Dean of the Faculty at the following address: <u>doyen.ne.pharma@ulb.be</u> with copy to <u>daf.pharma@ulb.be</u>.

It will contain the following items:

- a covering letter
- a Curriculum Vitae : *If you wish, a standard form can be completed via the website: <u>https://www.ulb.be/fr/documents-officiels/completer-votre-cv-en-ligne</u>. Once completed, it must be downloaded and attached to the application file.*
- a report of approximately 7000 characters (or 4 pages) on research activities and a research project, including the planned integration into ULB research teams
- a teaching dossier comprising a report of around 7,000 characters (or 4 pages) on previous teaching
 activities and a teaching project for the first 5 years of the term of office, which fits in coherently
 with the vision of the Faculty and with the key learning outcomes of the programmes to which the
 candidate will be expected to contribute
- a note on international projects and achievements (maximum 4 pages)
- the names and contact e-mail addresses of five referees who may be contacted by the bodies responsible for assessing the applications, taking care to ensure gender balance. These people must not be in a conflict of interest due to family or emotional ties.

Appointment within the ULB academic framework is at the rank of lecturer. Upon appointment, members of the academic staff are authorised to use the title of professor on an honorary basis.

Equal opportunities policy

ULB's personnel management policy focuses on diversity and equal opportunities.

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

Would you like to benefit from reasonable accommodation as part of the selection procedure because of a disability, disorder or illness? Please do not hesitate to contact Marie Botty (marie.botty@ulb.be), our contact person in charge of diversity issues for teaching and scientific staff. Rest assured that this information will remain confidential.

More details on our gender and diversity policies are available at https://www.ulb.be/fr/l-ulb-s-engage/diversites .

You will find all the provisions relating to the careers of academic staff on our website at http://www.ulb.ac.be/emploi/academique.html .