

## Faculty of Science and Engineering

### Profile report:

**Tenure Track Assistant Professor with education profile in Biomolecular Sciences** (Tenure track Assistant Professor met een onderwijsprofiel in Biomoleculaire Wetenschappen).

- Discipline: Biomolecular Sciences
- Level: Tenure-track assistant professor
- Fte: 0,8-1,0 fte

### 1. Scientific discipline

The strong interplay between teaching and research in the life science disciplines at the Faculty of Science and Engineering makes laboratory-based practical teaching a very important component of the educational programs. The education of students who are not only theoretically well skilled, but also on top of possibilities and limitations of state-of-the-art experimental techniques, makes our alumni highly sought after in industry and academia alike. The content of practical courses must be continuously monitored because developments in research techniques are rapid, and should be implemented in our programs as soon as possible. Also the interconnectivity with theoretical courses and developments in teaching methods necessitate a constant surveillance of the content of the practical course, and where necessary updating. For instance, current developments in practical teaching involve the use of online teaching tools for the preparation and reporting of experiments, and the use of alternative methods of instruction such as video demonstrations. The scientific discipline covered by the current vacancy involves curriculum development to streamline, update and integrate practical courses in the areas of Biochemistry, Chemical Biology, Structural Biology, Cell Biology, Microbiology, Systems Biology, or Biotechnology. At the same time, the connectivity of our practical courses with research activities in the same disciplines will be warranted by active embedding in the Groningen Biomolecular Sciences and Biotechnology Institute (GBB), which has a broad range of biomolecular research directions.

### 2. Vacancy

This position is opened by the Board of the Faculty (PT/gl/00078 dated January 27, 2021) and will be embedded in the Groningen Biomolecular Sciences and Biotechnology Institute (GBB). The criteria and conditions pertaining to the position are described in the document '[Assistant professor with an education profile](#)'.

### 3. Selection committee (BAC)

- Prof.dr. D.J. Slotboom (Scientific Director GBB, chair)
- Prof.dr. D.-J. Scheffers (Director Education GBB and programme director BSc Life Science and Technology)
- Dr. M.H.K. Linskens (Cell Biochemistry, GBB)
- Prof.dr. S. El Aidy (Host-microbe interaction, GBB)
- Dr. M. Van Rijssel (Science and Society Education, FSE)

- Dr. A.M. Da Costa Rodrigues Alves (Senior lecturer, Institute for Life Science & Technology, Hanze University of Applied Sciences)
- Jelmer Coenradij (Student member)

#### **4. Area of expertise**

Practical teaching in the molecular life sciences is part of many FSE BSc. programmes (Chemistry, Biology, Pharmacy, Life Science & Technology), and there is a need for harmonization of the teaching between programmes, modernization of the teaching methods, and updating according to global developments in related research areas. We are therefore looking for a new staff member who has expertise in teaching and is active in biomolecular research, and who can use this expertise to innovate practical teaching.

#### **5. Embedding: institute (and base unit)**

The position will be embedded in the Groningen Biomolecular Sciences and Biotechnology Institute (GBB) of the Faculty of Science and Engineering (FSE), University of Groningen. The institute GBB has 12 vibrant research groups, targeting biological questions in the two focal areas 'Molecular Mechanisms of Biological Processes' and 'Physiology and Systems Biology'. The envisioned research line will be embedded in the GBB research group that best matches the research profile of the new staff member.

Within GBB there is a strong tradition of sharing equipment, and the new staff member will have access to equipment spread over different research groups in the institute or which is housed in dedicated facilities (e.g. mass spectrometry, NMR, mammalian cell culture, EM). This has always been the policy, and has led to a diverse and attractive research environment. GBB has modern GMO certified laboratories and excellent in-house research facilities, varying from advanced optical and electron microscopy, analytical instrumentation (e.g. electrophysiology, mass spectrometry, protein purification), extensive collection of high-speed and ultracentrifuges, high-performance computing to mammalian cell culturing. Our open-door policy allows the new staff member to use necessary facilities to optimally execute the envisioned research with ample opportunities to team up with renowned colleagues.

#### **6. Local and (inter)national position**

Practical teaching is a very important component of education in STEM, taught at the Faculty of Science and Engineering. Although the initial task will be focused on the practical teaching in the Life Sciences and Chemistry curricula, various similar practical courses are taught in other FSE disciplines, such as Pharmacy. Regular exchange of experiences and best practices with teachers from these disciplines is expected. Furthermore, the successful candidate will be expected to be in close contact with the PIE (professionalization and innovation in education) team at FSE that collects good practices but also provides training for teaching assistants that will aid in practical courses. Other links can be envisaged with the practical teaching in Biomedical Sciences which is carried out at the University Medical Centre (UMCG). In a (inter)national setting, various professional bodies focused on scientific disciplines

have an education division aimed at improvement and development of education of the discipline. In terms of international position, the University of Groningen takes pride in having programmes with a larger than average practical course load, resulting in a very high quality of students that graduate from our programmes.

### **7. Expected contributions to teaching**

The primary task of the new staff member is to contribute to the optimization of practical elements in the curricula that cover elements in the realm of biomolecular sciences, particularly courses within the bachelor programmes Biology, Chemistry, and Life Science and Technology as well as the selective master programme Biomolecular Sciences. The new staff member will develop best practices for a coherent and innovative use of hybrid methods, and will transfer this knowledge to others staff members and teachers ('Teaching of Teachers'). The new staff member will also critically evaluate the content of the practicals, to make sure that students not only are taught state-of-the-art technical skills, but also that the development of skills throughout the different curricula is continuous and logical, and that integration between practice and theory is maintained.

The successful candidate contributes to the relevant teaching programmes of the bachelor, master and PhD programmes of the Faculty of Science and Engineering.

Expected outcomes are:

- 1) A modernized practical curriculum for all biomolecular life sciences practicals and
- 2) a hybrid learning environment for practicals that:
  - Reduces the need for students to be physically present in the lab.
  - Allows students to build a practical skills portfolio throughout the programme.
  - Provides students with a unified digital environment to be used throughout the programme.
  - Provides teachers/TAs with tools to facilitate monitoring of student's engagement and performance.

Teaching is affiliated to the curricula of the major Molecular Life Sciences, Life Science and Technology at the bachelor level and the ensuing respective Masters' programmes (i.e. Biomolecular Sciences). The successful candidate will play an active role in the development or critical evaluation of courses, to ensure a demonstrably high didactic quality of the offered courses. The candidate is expected to apply for educational grants (e.g. Comenius) to fund innovative education developments. The candidate will also play an active role in the organization of education at a programme or faculty level, for example by serving on programme committees.

Over the course of the appointment, the requirements for both the Basic and Senior University Teaching Qualifications will have to be fulfilled.

### **8. Expected contributions to research**

The research tasks entail (i) fundamental scientific studies that result in publications of high impact, appearing in internationally renowned scientific journals, and (ii) the co-supervision of at least one PhD student and/or postdoctoral fellows in their research. These tasks will be carried out in a research group of GBB that fits with the research profile of the candidate.

The research activities should further result in the strengthening of the international position of the institute GBB in FSE's biomolecular sciences in general. External funds raising is not essential to this position, but is a possibility.

**9. Expected contributions to the organization**

The candidate is expected to have an active interest and to provide a positive contribution to the management and organizational tasks of the research group and the institute GBB. The candidate will participate in relevant local, national and international organizations.