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PhD student in Analytical Chemistry

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Uppsala University is a comprehensive research-intensive university with a strong international standing. Our ultimate goal is to conduct education and research of the highest quality and relevance to make a long-term difference in society. Our most important assets are all the individuals whose curiosity and dedication make Uppsala University one of Sweden's most exciting workplaces. Uppsala University has over 54,000 students, more than 7,500 employees and a turnover of around SEK 8 billion.

The Department of Chemistry – BMC conducts research and education in analytical chemistry, biochemistry and organic chemistry. More than 100 people, including around 45 PhD students, work at the department. New employees and students are recruited from all over the world and English is the main working language. The department is located at the Biomedical Centre in Uppsala, which facilitates collaborations with research groups in biology, pharmacy, medicine and SciLifeLab and gives access to advanced infrastructure for experimental and theoretical studies. The international environment and good opportunities for interdisciplinary collaborations enables PhD students at the department to participate in relevant research projects and prepare for an international research career.

Read more about the research at The Department of Chemistry – BMC at our [website](#).

Project description

This PhD position is funded from a Swedish Research Council (VR) grant to investigate the role of fungi in the production of stable forms of aquatic dissolved organic matter. The PhD student will join the Hawkes research group (see group website <http://www.jeffreyhawkes.com>), and will be co-supervised by Dr. Anna

Rosling from the Department of Ecology and Genetics, Uppsala University. The Hawkes group investigates natural complex mixtures in aquatic ecosystems, primarily using liquid chromatography – high resolution mass spectrometry, and the Rosling group investigates soil fungal diversity and functions in the soil ecosystems. In this PhD project, the student will investigate the source of natural dissolved organic matter in freshwater systems using fungal decomposers as model organisms for degradation of complex plant material and soil organic matter. The student will culture fungi using substrates of varying complexity as a carbon source, and analyze the resulting exo-metabolome of the culture to monitor and characterize the production of complex, stable organic matter. The data resulting from the analysis will be treated with novel data-mining routines, and one potential route for the project involves developing data processing routines using multivariate statistics and machine learning. Another route involves advanced experimental development in microbial culture in soil settings.

The results will be evaluated in the context of the global carbon system, and the research will help to explore questions that currently limit our understanding of how ecosystems transform and store carbon in geochemically stable forms. We seek a student who is able to work on a highly cross-disciplinary project and have a flexible and creative approach to research, as the project is at the boundary of disciplines and the frontier of biogeochemistry research.

[Read more about our benefits and what it is like to work at Uppsala University](#)

Duties

The main duties of PhD students are to devote themselves to their research studies, which includes participating in research projects and third cycle courses. The work duties can also include teaching and other departmental duties (not more than 20 % of full time).

Requirements

- To be eligible for doctoral education, a basic higher education equivalent to at least 240 ECTS credits, including at least 60 ECTS credits at Master's level, including an independent project equivalent to at least 15 credits, or has acquired substantially equivalent knowledge in some other way, more information about the general requirements can be found [here](#).

- Special eligibility to doctoral studies in Analytical Chemistry requires that the doctoral student has passed courses in chemistry, or courses in areas relevant to analytical chemistry, of at least 90 credits or that he/she has acquired equivalent knowledge abroad. More information about the subject specific requirements can be found [here](#).
- Very good English proficiency in speech and writing. Great emphasis will be placed on personal qualities such as good collaborative skills, motivation and independence, as well as how the applicant through his/her experience and competence is judged to have the abilities necessary to develop within and acquire the doctoral education,

Additional qualifications

It is desirable if the selected candidate has expertise in at least one, and ideally two or more of these four research areas/skills:

- Previous experience working with high resolution mass spectrometry equipment
- Metabolomics analysis using liquid chromatography – mass spectrometry
- Microbiological culture experimentation
- Programming in R, MATLAB or Python.

Rules governing PhD students are set out in the Higher Education Ordinance chapter 5, §§ 1-7 and in [Uppsala University's rules and guidelines](#).

About the employment

The employment is a temporary position according to the Higher Education Ordinance chapter 5 § 7. Scope of employment 100 %. Starting date 21 May 2023 *or as agreed*. Placement: Uppsala

For further information about the position, please contact: Dr. Jeffrey Hawkes, +46 18 471 3677 jeffrey.hawkes@kemi.uu.se.

Please submit your application by 8 May 2023, UFV-PA 2023/1544.

Are you considering moving to Sweden to work at Uppsala University? [Find out more about what it's like to work and live in Sweden.](#)

Please do not send offers of recruitment or advertising services.

Submit your application through Uppsala University's recruitment system.

Placement: Department of Chemistry - BMC

Type of employment: Full time , Temporary position

Pay: Fixed salary

Number of positions: 1

Working hours: 100 %

Town: Uppsala

County: Uppsala län

Country: Sweden

Union representative: ST/TCO tco@fackorg.uu.se

Seko Universitetsklubben seko@uadm.uu.se

Saco-rådet sacco@uadm.uu.se

Number of reference: UFV-PA 2023/1544

Last application date: 2023-05-08

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