



Fully Funded PhD Scholarship in Soil Molecular Microbial Ecology College of Science and Engineering, School of Biological and Chemical Sciences, Ryan Institute

Applications are invited from suitably qualified candidates for full-time fully funded PhD scholarship starting in September 2024 affiliated to the College of Science and Engineering, School of Biological and Chemical Sciences, Ryan Institute at the University of Galway.

A fully-funded 4-year PhD scholarship is available in the group of Dr Alexandre de Menezes (molecular microbial ecology and soil microbiology) in collaboration with Dr Aaron Golden (data science, bioinformatics, machine learning), and Prof. Piet Lens (environmental biotechnology) at the University of Galway. As part of this project, microbial processes that influence nitrous oxide emissions from soils will be analysed. This project will include molecular ecological techniques, DNA and RNA sequencing, analytical chemistry (gas chromatography and mass spectrometry) and machine learning methodologies.

Project Description. Agricultural soils are important sources of greenhouse gas (GHG) emissions. To control agricultural GHG emissions, it is essential to understand the biological processes that generate them. This project will investigate an overlooked process that influence soil microbial nitrogen cycling, which is one of the main sources of the potent GHG nitrous oxide. Our long-term vision is to harness the soil's natural nitrification-inhibition processes for soil nitrous oxide mitigation and support low emissions, sustainable agriculture. The successful candidate will carry out soil microcosm experiments and use molecular biology, microbiome sequencing, shot-gun metagenomics and metatranscriptomics to characterize the relationships between soil gases and soil carbon and nitrogen cycling. The PhD student will work closely with a postdoctoral researcher and a research assistant.

Living allowance (Stipend): €22,000 tax-exempt per annum

University fees: Tuition will be paid for 4 years.

Start date: September – October 2024 (negotiable).

Academic Entry Requirements: a BSc and/or MSc in biology, microbiology, biochemistry, environmental science, ecology or related fields. Candidates must have good academic English writing and speaking proficiency. Strong interest in metagenomics, bioinformatics, machine learning and environmental sustainability will be an advantage.

To Apply for the Scholarship: please send your CV, a statement of interest including a summary of previous research experience (maximum 1 page), copies of transcripts and contact details for at least two referees to alexandre.demenezes@universityofgalway.ie.

Contact Name: Dr Alexandre de Menezes.

Contact Email: alexandre.demenezes@universityofgalway.ie.

Application Deadline: 12/07/2024 at 23:59



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HR EXCELLENCE IN RESEARCH

Primary Supervisor name: Dr Alexandre de Menezes.

Keywords: Microbial ecology, metagenomics, metatranscriptomics, greenhouse gas emissions, soil microbiology, sustainability





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HR EXCELLENCE IN RESEARCH

Postdoctoral Researcher - Soil biogeochemistry
School of Biological and Chemical Science, Ryan Institute
Ref. No. 010439

JOB ADVERTISEMENT

Applications are invited from suitably qualified candidates for a full-time, fixed term position as a Postdoctoral Researcher within the Sustainability Section of the [School of Biological and Chemical Sciences](#) and the [Ryan Institute](#) at the University of Galway, Ireland.

The University is committed to embracing opportunities for hybrid working, to build a more dynamic, agile and responsive University, while sustaining strong standards of teaching, learning, research and high levels of productivity. The University will continue to be the primary workplace for all staff, however individual hybrid arrangement requests can be reviewed with the Line Manager in conjunction with the University [Hybrid Working Policy](#).

This position is fully funded by SFI (details pending embargo) and is available from August 2024 until July 2028 as part of a project which will also include a PhD student and a research assistant.

The University of Galway is a publicly funded university in the top 1% in the world (QS rankings) and has earned international recognition as a research-led university with a commitment to highest-quality teaching and research.

A 4-year postdoctoral position is available in the group of Dr Alexandre de Menezes (molecular microbial ecology and soil microbiology) in collaboration with Dr Aaron Golden (data science, bioinformatics, machine learning), and Prof. Piet Lens (environmental biotechnology) at the University of Galway. As part of this project, microbial processes that influence nitrous oxide emissions from soils will be analysed. This project will include analytical chemistry (gas chromatography and mass spectrometry), molecular biology, DNA and RNA sequencing and machine learning methodologies.

Salary: Postdoctoral Researcher salary scale €44,346 - €56,764 per annum (subject to the project's funding limitations), and pro rata for shorter and/or part-time contracts.

The default position for all new public sector appointments is the 1st point of the salary scale.

[\(Research Salary Scales - University of Galway\)](#)

Closing date for receipt of applications is 17:00 (Irish Time) on the 16th of July 2024. It will not be possible to consider applications received after the closing date.

JOB DESCRIPTION

Agricultural soils are important sources of greenhouse gas (GHG) emissions. To control agricultural GHG emissions, it is essential to understand the biological processes that generate them. This project will investigate an overlooked process that influence soil microbial nitrogen cycling, which is one of the main sources of the potent GHG nitrous oxide. Our long term goal is to offer novel ways to predict nitrous oxide emissions from soil and support low emissions, sustainable agriculture.



The successful candidate will carry out soil microcosm experiments, quantification of nitrous oxide emissions and other soil gases and support the analysis of soil microbial communities using molecular biology, microbiome sequencing and shot-gun metagenomics and metatranscriptomics. The candidate will carry out data analysis, including the use of machine learning techniques.

Duties:

- Conduct a specified programme of research and scholarship under the supervision and direction of the Principal Investigator.
- Plan, coordinate and implement the project's research and dissemination activities.
- Work closely with PI and co-PI in the delivery of the project's research outputs, including peer-reviewed research articles and funder reports.
- Mentor and assist, as appropriate and as directed, graduate students in the School, including acting as co-supervisor or member of a supervision panel.
- Develop and maintain knowledge and understanding of the policy, practices and procedures, relevant to the role, which may include broader University/sector/external sponsor or funder (e.g. Commercial Awareness, Research Ethics, Knowledge Transfer, Patents, Intellectual Property Rights, Health and Safety, Equal Opportunities & Diversity, legal requirements regarding data protection and confidentiality).
- Any other duties assigned commensurate to this level of post.

The postdoctoral researcher must be available in August 2024 or as soon as possible (negotiable).

Qualifications/Skills Required:

Essential Requirements:

- A PhD in biogeochemistry, greenhouse gas emissions, environmental microbiology, soil science or related areas including omics.
- Experience with analytical chemistry applied to environmental science.
- Ability to work in teams.
- Proven ability to write peer-reviewed scientific articles.
- Proficiency in English language.
- Excellent organisational skills.

Desirable Requirements:

- Experience with R or python.
- Knowledge/familiarity with soil ecosystem function.
- Familiarity or experience in bioinformatics
- Experience with machine learning methodologies.
- Experience or knowledge of genomics and DNA sequence data, metagenomics, metatranscriptomics.
- Experience in researcher supervision.

To Apply:

[Search Vacancies - University of Galway](#). Applications must be submitted online.

- [Internal Applicant - How to apply guide](#)
- [External Applicant - How to apply guide](#)
- For informal enquiries, please contact Dr Alexandre de Menezes, School of Biological and Chemical Sciences. email: alexandre.demenezes@universityofgalway.ie



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CONTINUING PROFESSIONAL DEVELOPMENT:

Researchers at University of Galway are encouraged to avail of a range of training and development opportunities designed to support their personal career development plans. University of Galway provides continuing professional development supports for all researchers seeking to build their own career pathways either within or beyond academia. Researchers are encouraged to engage with our Researcher Development Centre (RDC) upon commencing employment - see [HERE](#) for further information.

Further Information/Links

- [University's Strategic Plan](#)
- [Working in Research at University of Galway](#)
- [Moving to Ireland \(Euraxess\)](#)
- [Applicant Information](#)
- We reserve the right to re-advertise or extend the closing date for this post.
- University of Galway is an equal opportunities employer.
- All positions are recruited in line with Open, Transparent, Merit (OTM) and Competency based recruitment.

