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Fate and transport of AMRs in nature-based treatment systems
University of Guelph

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Posted Sep. 9, 2024, set to expire Jan. 9, 2025

Job Title	Fate and transport of AMRs in nature-based treatment systems
Department	School of Environmental Sciences
Institution	University of Guelph Guelph, Ontario
Date Posted	Sep. 9, 2024
Application Deadline	Nov. 27, 2024
Position Start Date	Available immediately
Job Categories	Graduate Student
Academic Field(s)	Environmental Sciences/Ecology/Forestry Biology - Molecular Biology - Microbiology
Apply By Email	
Job Description	

Fate and transport of AMRs in nature-based treatment systems

PhD description: The PhD student will work in a larger team around monitoring and modelling the sources, fate, transport and treatment of pollutants (especially pathogens) in water systems. This specific project will explore new the removal of pathogens and antimicrobial resistance genes in nature-based treatment systems, such as biofilters and wetlands. Here are two examples of papers produced by students of ours with similar topics (but of course not the same): https://pubmed.ncbi.nlm.nih.gov/31726396/ and https://pubmed.ncbi.nlm.nih.gov/35717708/. The PhD

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student will develop their own research program and research questions, design and execute lab and field experiments, and prepare and submit a number of manuscripts to highly ranked journals. There will be opportunities for the PhD student to work together with partners and present their work at national and international conferences.

Key selection criteria: The applicant (1) must have an undergraduate, or preferably a master's, degree in a relevant field (e.g. molecular/environmental microbiology, environmental/civil engineering, etc.), (2) must meet minimum entry grades as outlined here https://graduatestudies.uoguelph.ca/future/apply/requirements, (3) should have some experience in laboratory work in culture or molecular detection of microbes/AMRs and some experience in water systems and (4) if applicable, must meet minimum English language requirements as outlined here https://graduatestudies.uoguelph.ca/future/international/english.

Group description: The PhD student will work together in a large team together with the Canada Excellence in Research Chair (CERC) in Waterborne Pathogens: Surveillance, Prediction and Mitigation. Through our recruitment of a program manager, three postdoctoral fellows and six PhD students, we are building a collaborative, supportive, and diverse group that is dedicated to advancing our ability to sense, model, treat and control pollution in water systems. Our team members can join existing research project concepts or join and begin to design their own. Collectively, our team will innovate, develop and validate novel sampling and sensing methods, rapid diagnostic tools, integrated models and treatment options for the surveillance, prediction and mitigation of waterborne pathogens via five deliverables: (1) smart sampling and sensing systems to detect temporal and spatial trends of pathogens in water systems, (2) rapid and near-real-time assays to detect pathogens and their sources, (3) tools/models that can provide early warning of, and mitigation options to limit, disease in our community, (4) treatment of pathogens to protect human health when water is used by humans and (5) training, standard operating procedures, reference materials and guidance manuals to ensure our outputs are useful and adopted by our partners.

Location: Our team is located in the School of Environmental Sciences (SES) in the Ontario Agricultural College (OAC) at the University of Guelph. The University of Guelph is consistently ranked among the top 5 comprehensive (non-medical) universities in Canada. Guelph, a city steeped in rich history dating back to its founding in 1827, offers students a unique blend of heritage and forward-thinking innovation. Originally designed with a European-inspired radial street plan, Guelph's historical charm is evident in its limestone architecture and well-preserved downtown. This progressive city has long been at the forefront of social and environmental initiatives, earning recognition as one of Canada's most liveable communities. Guelph is close to Toronto and has easy access to some of the most beautiful nature in Canada.

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Funding: minimum of $30,000 CAD per year, plus other opportunities for additional bursaries and support. Funding for domestic and international travel to conferences is also available. In addition, doctoral students are guaranteed Graduate teaching assistantships.

How to apply: Send your (1) Cover letter which must include a statement of how you address the key selection criteria and (2) CV which includes the names of three referees to **david.mccarthy@uoguelph.ca**.

Closing date: 27th November 2024

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact David McCarthy
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