

Sources of pathogens and AMRs in environmental  
ecosystems  
University of Guelph

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

<b>Job Title</b>	Sources of pathogens and AMRs in environmental ecosystems
<b>Department</b>	School of Environmental Sciences
<b>Institution</b>	University of Guelph Guelph, Ontario
<b>Date Posted</b>	Sep. 9, 2024
<b>Application Deadline</b>	Open until filled
<b>Position Start Date</b>	Nov. 27, 2024
<b>Job Categories</b>	Graduate Student
<b>Academic Field(s)</b>	Water Resources Engineering Ecological and Environmental Civil Engineering Bioengineering (all Bio-related fields)

**Apply By Email**

**Job Description**

## Sources of pathogens and AMRs in environmental ecosystems

**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 genetic sequencing based methods to accurately discern sources of pathogens and AMR genes in environmental ecosystems. Here is one example of a paper produced by students of ours with similar topics (but of course not the same):

<https://pubmed.ncbi.nlm.nih.gov/26921850/>

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. The PhD 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, bioinformatics, 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 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](mailto:david.mccarthy@uoguelph.ca).

**Closing date:** 27<sup>th</sup> November 2024

### Contact Information

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

**Contact** David McCarthy  
School of Environmental Sciences  
University of Guelph  
Guelph, ON  
Canada

**Contact E-mail** [david.mccarthy@uoguelph.ca](mailto:david.mccarthy@uoguelph.ca)