PhD opportunity: 'Ecology and impacts of viruses of harmful algae'

The Environmental Virology and Ecology Research Group (i.e., ENVERG; https://uwaterloo.ca/environmental-virology-ecology-research-group/) led by Dr. Nissimov is recruiting a PhD student to investigate the interactions between harmful algal bloom-forming species and their viruses.

Project Scope: Aquatic viruses are viewed as major drivers of biogeochemical cycles and as crucial components that shape microbial food webs. Our main understanding of these viruses derives predominantly from their study in marine habitats. To that end, it is widely accepted that they can control the abundance of dominant microbial communities, decide the faith of algal blooms, and affect the diversity of microorganisms in coastal and oceanic environments. Nevertheless, despite the ecological and societal importance of freshwater environments, our understanding of the role of viruses in freshwater habitats is at its infancy. The PhD student will work in a collaborative and cross-disciplinary environment to identify and isolate from Canadian lakes novel microalgal/cyanobacterial hosts and their viruses, investigate their diversity and co-occurrence *in situ*, and conduct infection-dynamics experiments in the laboratory. Collectively, these will begin to unravel the ecological significance of virus infection of harmful algal blooms in lakes and start to pin down whether virus infection of HAB formers have a net positive or negative effect.

Academic Environment: The student will join Dr. Nissimov's research group (ENVERG) in the Department of Biology (https://uwaterloo.ca/biology/graduate-studies) at the University of Waterloo and will conduct research in the laboratory and in the field. The PhD candidate will conduct molecular biology and microbiology research, and bioinformatics analyses of data obtained from both laboratory experiments and *in situ* observations.

Funding: The current stipend for graduate students at the Department of Biology is $25,104/year. Additional details on funding breakdown and program requirements can be found in the Biology graduate handbook (https://uwaterloo.ca/biology/graduate-studies/biology-graduate-handbook). Eligible students are also encouraged to apply for external funding (NSERC, OGS, QEII) as this will be viewed favorably during the application process.

Essential Qualifications:

1. Successfully complete a thesis-based MSc in Biology, Biotechnology, Aquatic Sciences, or a related field, prior to the PhD proposed start date.
2. Have meaningful laboratory experience in microbiology and molecular biology, and an interest in limnology, algal biology/ecology and/or environmental virology (e.g., taken upper year/graduate level classes and/or labs on these topics, or completed a relevant BSc/MSc thesis, or work experience in these areas). Prior experience in filed work and bioinformatics will be looked upon favourably.
3. Have strong verbal and written communication skills.
4. Be able to work independently and collaboratively.
5. Be able to embrace challenges and not afraid to ask questions.
6. Be a self driven and motivated individual.

Starting Date: January 2023 (flexible)

Instructions: E-mail Dr. Nissimov (jnissimov@uwaterloo.ca) using the subject line "PhD Viruses and HABs 2023" and include: **1)** Cover letter that outlines your research interests and how they align with the project, and how your experiences meet the stated essential qualifications; **2)** Curriculum vitae; **3)** Contract information of three references (must include name, affiliation and email address); and **4)** Unofficial transcripts. Review of applications will begin September 1st, 2022 and the posting will remain open until the position is filled. All qualified applicants are encouraged to apply; however, preference will be given to Canadian citizens and permanent residents.

The ENVERG strives to be an equitable, diverse, inclusive, collaborative, and stimulating research environment that supports and encourages each individual to cultivate their potential and attain their professional goals. We welcome applications from women, Indigenous, Black, and other under-represented individuals.