



MSc opportunity: 'Environmental effects on aquatic algal- and cyanobacterial-virus infection dynamics'

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 MSc student to investigate the impact of different physicochemical factors on aquatic algal- and cyanobacterial-virus infection dynamics.

Project Scope: Aquatic viruses are viewed as major drivers of biogeochemical cycles and as crucial components that shape microbial food webs. It is widely accepted that viruses 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. However, despite the significance of climate change and eutrophication for ecosystem health and growing recognition that environmental parameters related to these processes can affect virus infectivity, direct empirical evidence on the isolated effect of these parameters on aquatic host-virus infection dynamics is lacking. The MSc student will use a targeted approach to begin to identify and characterise the importance of specific physicochemical factors that may influence the success of key aquatic viruses of natural systems and, by extension, their potential biogeochemical impact. The work will include virus infection experiments using resistant and susceptible to infection microalgal and cyanobacterial strains under various ecologically relevant conditions.

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 using microbiological techniques and state of the art photobioreactor systems and controlled environment growth chambers.

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 BSc in Biology, Biotechnology, Aquatic Sciences, or a related field, prior to the MSc 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 classes and/or labs on these topics, or completed a relevant BSc thesis, or work experience in these areas). Prior experience with cultivating algae, cyanobacteria and their viruses 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 "MSc Infection Dynamics 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)** Contact 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.