



University
of Manitoba



Job advertisement

University of Manitoba (Canada): **PhD or MSc – Acid-Base Regulation and Osmoregulation in Aquatic Invertebrates**

The Weihrauch lab (**The Crab Lab**) is seeking for a highly motivated PhD student (or MSc with BSc honors degree) to investigate mechanisms involved in osmoregulation, nitrogen excretion and acid-base regulation in aquatic invertebrate species. According to the student's interest, this can also be investigated with the background of inevitable rising atmospheric P_{CO_2} levels (**Global Change**).

Potential study projects:

- Exploring the role of aquaporins in osmoregulation, ammonia and CO_2 transport
- Physiological effects of heat waves and nitrogen stress
- Characterization of novel acid-base related transporters and their role in invertebrates and fish
- Characterization of the acid-base balance in crabs inhabiting extreme environments (e.g. hydrothermal vent crabs; tree climbing crabs, freshwater crustaceans).

Potential study organisms include but are not limited to: Horseshoe crabs (living fossils); Northern crayfish, Dungeness crabs, and Lobsters (commercially relevant and tasty); Green shore crabs (highly invasive species); *Daphnia magna* (water quality indicator).

In my laboratory we follow an integrative research approach, combining experiments on the living animal (e.g. metabolic rates, hemolymph parameters), transport physiological methods (perfused gills, Ussing chamber experiments, electrophysiology), molecular techniques (qPCR/functional expression of transporters in oocytes), and imaging techniques. Accordingly, a strong background in animal physiology and molecular and/or imaging methodology is an asset.

Facilities: Although landlocked, our Department entertains circulatory seawater systems for marine studies, as well as freshwater facilities. We are also equipped with temperature, light and humidity adjustable environmental rooms.

Most important however, will be enthusiasm and dedication to the project.

Depending on the project, the opportunity for an extended research stay (up to 3 months) at marine biological stations (e.g. Academia Sinica, Taiwan; GEOMAR, Kiel, Germany; Bamfield Marine Sciences Centre, Vancouver Island) will be given. Students will present their work on national (CSZ) and international (e.g. SEB, SICB) meetings.

You will join my socially active lab, currently composed of 3 PhD and 3 MSc students (plus undergraduates).
Wir sprechen auch Deutsch!

Start dates: September 2021 or January 2022.

Requirements: The candidate must have a minimum score of 75 out of 100% (or equivalent) in order to apply successfully for internal and external funding. For international students a valid TOEFL-test (or equivalent) is required in addition to excellent communication and writing skills (English).

Funding of salary is provided at the NSERC level for 2 (MSc) or 4 (PhD) years.

If you are interested, please provide your updated CV, an unofficial transcript, a copy of MSc or BSc thesis (if available at this point), and contact information of at least 2 references.

Applications should also include a letter outlining your own research interests/ideas and how that would fit into our overall research program.

Please contact me directly by email: **Dirk.weihrauch@umanitoba.ca**, or phone: **1-204 4746310** for any questions.

For more information, see also: <https://www.researchgate.net/profile/Dirk-Weihrauch>

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