

ALEXANDRA WEBER

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Vancouver, BC, Canada

EDUCATION

M.Sc. Zoology University of British Columbia – Vancouver, BC (Sept 2025 – Present)

Thesis: From Gills to Tracheae: Investigating the Evolutionary History of Arthropod Respiratory Structures

Supervisors: Heather Bruce

Bachelor of Science Honours with High Distinction, Carleton University – Ottawa, ON (Sept 2020 – Jun 2025)

Major: Biology, CGPA: 11.44/12 (A); Major CGPA: 11.86/12 (A)

Minor: Earth Sciences: Earth Resources and Processes, CGPA 12/12 (A+)

AWARDS & HONOURS

Academic Honours

Graduation award - High Distinction* (Jun 2025)

Honour - Deans' Honour List* (2024)

Honour - Deans' Honour List* (2023)

Honour - Deans' Honour List* (2022)

Honour - Deans' Honour List* (2021)

Scholarships

Faculty of Science Master's Tuition Award** (Sept 2025 – Sept 2026) – 5,663.52

Carol Shields Scholarship - Canadian Federation of University Women/Ottawa - (Sept 2024 – Apr 2025) – \$1,500 CAD

E.W.R. Steacie Scholarship* (Sept 2023 – Apr 2024) – \$2,000 CAD

Lester B. Pearson Award* (Sept 2022 – Apr 2023) – \$2,000 CAD

Carleton University Entrance Scholarship* (Sept 2020 – Apr 2021) – \$2,000 CAD

Conference/Research Awards

Travel Award – Canadian Society of Zoologists (May 2026) - \$300 CAD

Best Poster –Debbie and Justin Wragg-Schmidt Zoology Spring Symposium (April 2026)

Best 5MT Award - Biology Undergraduate Research Day* (Apr 2025) - 500 CAD

Travel Award - Broadening Participation Professional Development Travel Award – Society of Integrative and Comparative Biology (Jan 2025) – \$500 USD

Prize - Best Undergraduate Poster – Life Sciences Day 6.0 (May 2023) – \$500 CAD

* Awarded by Carleton University

** Awarded by The University of British Columbia

RESEARCH FUNDING

Canada Graduate Research Scholarship-Master's – NSERC (Sept 2026 – Sept 2027) - \$27,000 CAD (Competitive)

I-CUREUS – Undergraduate Research Grant (Nov 2021 – Mar 2022), Carleton University – Total Funding: \$2,250 CAD (Competitive)

PUBLICATIONS

Weber A., Watson G., et al. (In Review) “Symmetry Breaking in Snake Embryos: How and Why They Coil” *Current Biology*

Weber A. (In Review) “Upperbody Determinants of Foil Tip Acceleration and Velocity in a Fencing Lunge.” *Carleton Undergraduate Journal of Science*

Bohm M., Browning L., Church C., **Weber A.** (2023) “Abiotic influences of spatial variations in phytoplankton and heterotrophic bacteria abundances across Barkley Sound.” *Bamfield Marine Sciences Centre* (Accepted, Non-refereed)

CONFERENCE PUBLICATIONS

Weber A., Miyashita T. (2025) “A Functionally Jawless Mutant of the Zebrafish *Danio rerio*.” *Proceedings of the Carleton University Biology Research Day 2025* (Abstract)

Weber A., Miyashita T. (2025) “A Functionally Jawless Mutant of the Zebrafish *Danio rerio*.” *Proceedings of Ontario Biology Day 2025* (Abstract)

THESIS/DISSERTATION

“A Different Set of Jaws: Comparative Skull Anatomy of Adult Zebrafish (*Danio rerio*) and Functionally Jawless *nkx3.2*–/– Mutant.” (2025). Carleton University. Bachelor's Honours Thesis (66 pages). Supervisor: Tetsuto Miyashita.

WORKING PAPERS

Weber A., Desbiens J., Pettit A. (2024) “Who Let the Dog's Ca²⁺ Out?: A Molecular Case Study in Muscle Contraction.” Working paper.

TEACHING EXPERIENCE

Teaching Assistant, BIOL204 Vertebrate Structure and Function (University of British Columbia, Jan–Apr 2026) – Undergraduate

Teaching Assistant, BIOL331 Developmental Biology (University of British Columbia, Sept–Dec 2025) – Undergraduate – ~70 students

Teaching Assistant, BIOL1103 Foundations in Biology (Carleton, Sept–Dec 2024) – Undergraduate – ~200 students

Teaching Assistant, BIOL3305 Human and Comparative Physiology (Carleton, Oct–Dec 2023) – Undergraduate – ~60 students

WORK & RESEARCH EXPERIENCE

Research Assistant, Bruin Laboratory – Ottawa, ON - (May–Aug 2023)

- Project title: Investigating the impact of chemotherapeutic drug cisplatin on beta-cell function.

Research Affiliate, Agriculture and Agri-Food Canada – London, ON - (May–Sept 2022)

- Research Unit: Molecular Diagnostics and Biological Control of Invasive Insect Pests in Agriculture
- Project: Survey of Spotted Wing Drosophila Populations in Southern Ontario
- Created the system used for specimen organization and data collection.
- Contributions acknowledged in; Gariepy, T.D., et al. (2024) Widespread establishment of adventive populations of *Leptopilina japonica* (Hymenoptera, Figitidae) in North America and development of a multiplex PCR assay to identify key parasitoids of *Drosophila suzukii* (Diptera, Drosophilidae). *NeoBiota* 93: 63-90. <https://doi.org/10.3897/neobiota.93.121219>

I-CUREUS Internship, Canadian Museum of Nature – Ottawa, ON - (Nov 2021-Mar 2022)

- Project: Developed comparative 3D anatomical atlases of wildtype and nkx3.2 mutant zebrafish.
- Foundational work for my undergraduate thesis

Administrative Assistant, UTEX Scientific Instruments (Seasonal, 2020/21)

Volunteer and Community Activities

Science Lead, Carleton Planetary Robotics Team - Ottawa, ON - (Sept 2023 – Aug 2025)

- Directed design of life detection and environmental analysis systems; led team to top environmental analysis score at CIRC and qualification in the University Rover Challenge
- Other responsibilities include managing the Science Sub team members and creating a welcoming and inclusive environment. I also made it my personal mission to teach engineers about the scientific method, and the philosophy of science.

APPLIED PROJECTS

Independent Research Project, Biomechanics BIOL3501, Carleton University (Jan–Apr 2024)

- Project title: Upper Body Determinants of Fencing Lunge Velocity

Independent Research Project, Advanced Cell culture and Tissue Engineering BIO14201, Carleton University (Jan–Apr 2024)

- Project title: BPA-Induced Lipid Accumulation in HepG2 Cells
Research Project, Biological Oceanography, Bamfield marine Sciences Center (Aug 2024)
- Project title: Abiotic Influences on Phytoplankton & Bacteria
- Addressed whether the new Bamfield Marine Science Centre (BMSC) sewage treatment plant resulted in a reduction of chlorophyll-a levels in Bamfield and Grappler Inlets and what additional abiotic factors affect the spatial distribution of heterotrophic bacteria and phytoplankton in Barkley Sound

International Collaborations

Principal Investigator, Survey of Snake Embryo Coiling Direction (Jun 2021 – Ongoing)

- I lead a team of 8 international collaborators from Canada, Finland and the United States of America. I also organized the collection of over 400 photographs of snake embryos collected from institutions worldwide.

PRESENTATIONS

As Primary Presenter

Poster – “Arthropod's Next Top Model: *Oxidus gracilis*” – Debbie and Justin Wragg-Schmidt
Zoology Spring Symposium, Vancouver, BC (April 2026) – Competitive

- Won Best Poster

Poster – “Arthropod's Next Top Model: *Oxidus gracilis*” – Eco-Evo, Maple Ridge, BC (Nov 2025) – Competitive

Talk – “A Functionally Jawless Mutant of the Zebrafish *Danio Rerio*” – Carleton University
Biology Research Day, Ottawa, Canada (Apr 2025) – Competitive

- Awarded Best 5MT award

Talk – “A Functionally Jawless Mutant of the Zebrafish *Danio Rerio*” – Ontario Biology Day,
Canada (Mar 2025) – Competitive

Poster – “Comparative Skull Anatomy of Adult Zebrafish (*Danio rerio*) and Functionally
Jawless Mutant” – SICB Annual Meeting, Atlanta, USA (Jan 2025) – Competitive

- Karel Liem Best Poster Competition Best student presentation poster finalist

Poster – “A description of the osteological skull morphology of *Danio rerio* with the intent
of using it for the comparative analysis of *nkx3.2* -/- mutants.” – Ottawa-Carleton Institute of
Biology, Ottawa, Canada (Apr 2023) – Competitive

Poster – “A description of the osteological skull morphology of *Danio rerio* with the intent
of using it for the comparative analysis of *nkx3.2* -/- mutants.” – Life Sciences Day 6.0,
Ottawa, Canada (May 2023) – Competitive

- Awarded Best Undergraduate Poster

Poster – “A description of the osteological skull morphology of *Danio rerio* with the intent
of using it for the comparative analysis of *nkx3.2* -/- mutants.” – Canadian Society for
Vertebrate Paleontology, Ottawa, Canada (May 2023) – Invited

Poster – “Survey of Coiling Directions in Snake Embryos” – Canadian Society of Zoologists,
Moncton, Canada (May 2022)

Invited Talks

Guest Lecture – “Arthropod evo-devo and working with lab tractable models” – BIOL326 – University of British Columbia – Vancouver, BC (Feb 2026)

Public Outreach – “Using modern fish to study ancient evolutionary transitions” – Gallery opening of “Life onto land: The Devonian”, Canadian Museum of Nature - Ottawa, ON (Dec 2025)

MEDIA COVERAGE

Broadcast Interview: CityNews Vancouver – Advancing biodiversity research at UBC with expanded facility (Sept 17th, 2025)

Text Interview: Xinhua – Research being done in the new UBC Beaty Biodiversity Centre expansion (2025/09/18)

MUSEUM EXHIBITIONS

Exhibit section contribution: Life onto Land: The Devonian – Canadian Museum of Nature

- The section is dedicated to covering my undergraduate research on nkx3.2 mutant zebrafish

EVENT ADMINISTRATION

Organizer/Presenter – Conceptual Design Review, Carleton Planetary Robotics Team (Feb 2025)

- Organized faculty/industry feedback; coached presenters; presented and fielded questions.

Organizer/Presenter – Conceptual Design Review, Carleton Planetary Robotics Team (Feb 2024)

- Invited professionals to advise on scientific merit; presented design and fielded questions.

MENTORING ACTIVITIES

Mentor, Carleton Planetary Robotics Team (Apr–Sep 2025)

- Mentored incoming Sr. Science Lead; onboarding and scientific training; ongoing advisory support.

CREDENTIALS & TRAINING

CTD Operation – Ocean Networks Canada (Aug 2023)

Standard First Aid & CPR Level C (Valid until Jul 2026)

Paleo Resource Workshops (Sept–Dec 2021)

Open Water Diver Certification – PADI (Mar 2014)

LANGUAGES

English (Fluent)

German (Intermediate), German School, Freidrich Schiller Schule (2009 – 2014)

Spanish (Intermediate), Second-year Spanish SPAN2010, Carleton University (Sept – Dec 2020), High School Spanish, Oakville Trafalgar High School (2016- 2018)

French (Basic), Grade 4 – 9 French, Owenwood Public School, Fern Hill School (2007 – 2016)

Russian (Basic), First year Russian RUSS2010, Carleton University (Sept – Dec 2023)