

Jenna Melanson

jenna.melanson@ubc.ca • 360.200.9317

Education

UNIVERSITY OF BRITISH COLUMBIA
Ph.D. in Zoology
Supervisor: Claire Kremen

VANCOUVER, BC
2020 –

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Bachelors of Science in Biological Engineering

CAMBRIDGE, MA
2016 - 2020
GPA: 5.0/5.0

Publications

2021 Krishnan, A., Likhogrud, M., Cano, M., Edmundson S., **Melanson, J.**, Huesemann, M., McGowen, J., Weissman, J., Posewitz, M. *Picochlorum celeri* as a model system for robust outdoor algal growth in seawater. *Sci Rep* **11**, 11649 (2021). <https://doi.org/10.1038/s41598-021-91106-5>

Talks

- 2024 Bumble bee parasite prevalence in the Lower Fraser Valley: the impacts of *B. impatiens* abundance on native *Bombus* spp. North American *B. impatiens* Working Group Meeting, Presented Virtually.
- 2024 Bumble bee parasite prevalence in agroecosystems of the Lower Fraser Valley. Canadian Society for Ecology and Evolution (CSEE), Vancouver, BC.
- 2024 Bumble bee disease dynamics in agroecosystems: The roles of landscape-scale management and an introduced species. Entomology, Phoenix, Arizona.

Poster Presentations

- 2024 **Melanson, J.B.**, Ponisio, L., Kelly, T., Klinger, E., Kremen, C. Bumble bee disease dynamics in agroecosystems: the impacts of landscape context and an introduced species on parasite prevalence. NACCB, Vancouver, BC, June 2024. [Presented by Tyler Kelly]
- 2022 **Melanson, J.B.**, Kelly, T., Kremen, C. Navigating the risk-reward landscape of agroecosystems: bumble bee movement and resource use across a landscape-diversity gradient. EcoEvo, Squamish, BC, October 2022. Received Student Presentation Best Poster Prize

Research Experience

- WORCS LAB, UBC VANCOUVER, BC
PhD Candidate 2020-
Supervisor: Claire Kremen (PI)
- Assessment of bumble bee (*Bombus* spp.) disease ecology in agroecosystems, focusing on the role of landscape composition/complexity and introduced species abundance on parasitism rates [*publication in prep*] [*collaborators: Prof. Lauren Ponisio, University of Oregon; Dr. Susan Waters, Quamash EcoResearch; Tyler Kelly, UBC*]
 - Evaluation of wild bumblebee foraging distance, diet, dispersal, and lineage turnover across an agricultural landscape diversity gradient [*collaborators: Tyler Kelly, UBC; Dr. Jonathan Koch, USDA ARS*]
 - Quantification of pesticide residues in bumble bee-collected pollen loads from inter- and post-bloom periods of commercial highbush blueberry [*collaborator: Prof. Scott McArt, Cornell University*]
 - Population genetics of an introduced bumble bee (*Bombus impatiens*) outside its native range [*collaborator/research lead: Dr. Jonathan Koch, USDA ARS*]

- Exploration of odonate trophic niche and pest-suppression in agroecological systems [*collaborator/research lead: Prof. Rassim Khelifa, Concordia University*]
- Admin: planning, set-up, and maintenance of a CL1 research laboratory equipped for molecular biology protocols

PARSONS LABORATORY, MIT

CAMBRIDGE, MA

Undergraduate Research Associate

2019-2020

Supervisor: Rachel Szabo, Otto Cordero (PI)

- Isolated microbial strains and sequenced gut microbiota from the Galapagos marine iguana to determine differences in microbial functional diversity between iguana subpopulations

DEPARTMENT OF CHEMISTRY, COLORADO SCHOOL OF MINES

GOLDEN, CO

Undergraduate Research Associate

2019

Supervisor: Anagha Krishnan, Matthew Posewitz (PI)

- Streamlined genomic DNA extraction protocols and characterized ploidy/post-transformational plasmid integration for *Picochlorum celeri*, an algal strain undergoing development as a biofuel source [*see publications*]

CONBOY LAKE NATIONAL WILDLIFE REFUGE, USFWS

GLENWOOD, WA

Field Technician

2018

Supervisor: Trevor Sheffels

- Surveyed native plant/animal populations, including several federally/endangered threatened species; performed invasive species removal and biocontrol in key habitat areas; measured native plant growth and distribution; helped direct Youth Conservation Corps (YCC) educational tours and biological data collection.

INSTITUTE FOR MEDICAL ENGINEERING AND SCIENCE / BROAD INSTITUTE, MIT

CAMBRIDGE, MA

Undergraduate Researcher

2017-2018

Supervisor: Brittany Goods, Alex Shalek (PI)

- Conducted longitudinal profiling of B cells across Ocrelizumab treatment in multiple sclerosis patients using single-cell RNA sequencing; performed bioinformatic analysis of single-cell RNA sequencing datasets.

UNIVERSITY CENTER FOR EXCELLENCE IN DEVELOPMENTAL DISABILITIES, OHSU

PORTLAND, OR

Intern, Center of Spoken Language Understanding

2016

Supervisor: Alexander Kain (PI)

- Reviewed literature for publication on speech duration conversion and contributed to algorithm for speech duration conversion for use in speech transformation devices.

Honors / Awards

2022-2025	Vanier Canada Graduate Scholarship (\$110,000)
2020-2024	UBC Four Year Fellowship (\$53,000)
2025	Pacific Branch Entomological Society Travel Award, UBC Department of Zoology Travel Award (\$1000)
2024	UBC Travel Award (\$500)
2020	National Science Foundation Graduate Research Fellowship, Honorable Mention
2016-2020	National MS Society Scholarship (\$12,000)
2016-2020	Hadden Youth Foundation Scholarship (\$16,000)

Mentorship

Molecular biology protocols

- e.g., DNA extractions, PCR/multiplex PCR, gel electrophoresis, molecular metabarcoding

1 postdoc, 1 PhD candidate,
5 undergraduates

Field data collection

- e.g., bumble bee ID, pollinator surveys, flowering vegetation surveys

3 undergraduates

Database development / management

4 undergraduates

- e.g., database design/construction, data entry and cleaning

Study design / statistical analyses

1 undergraduate

- e.g., determining appropriate sample size and distribution of survey effort, analysis of pollen microscopy dataset (directed studies project)

Service and Outreach

2025, 2022-2023	Biology Undergraduate Diversity in Research (BUDR) Mentorship & Micro-Experience Project Supervisor — Provided professional development training to a total of six mentees, including strategies for success in STEM undergrad programs and preparing/applying for grad school and other careers in biology. Additionally provided lab experience/training for one BUDR student.
2025	Disabled in STEM Mentorship Program —Provided lateral mentorship and served as a group leader in the 2025 cohort, aimed at providing academic supports and improving accessibility for disabled students and scientists pursuing careers in STEM.
2025	Debbie & Justin Wragg-Schmidt Zoology Symposium Academic Committee —Solicited, organized, and scheduled academic presentations for the UBC Department of Zoology's annual graduate student symposium.
2025	UBC Multidisciplinary Undergraduate Research Conference Adjudicator —Provided feedback on undergraduate research projects presented at the annual conference.
2023	Future of Food Global Dialogue and Webinar Series – convened diverse panelists (including representatives from academia, government, industry, and the local farming community) for webinar, “Unlocking the Potential of Diversified Farming: Exploring Benefits and Overcoming Barriers.”
2023	Outreach to Contributing Landowners – Provided documentation on floral / bumble bee diversity and abundance to 35+ landowners who participated in thesis data collection
2022	Let's Talk Science Program Lessons in Ecology and Evolution Fundamentals (LEEF) – Gave lesson on pollinator biodiversity to elementary students in Vancouver
2022	Zoology Graduate Student Association Peer Mentor – Provided support and mentorship for incoming graduate students in the UBC Department of Zoology
2019 - 2020	Little Beavers MIT – co-founded an MIT chapter of Step Ahead, a national non-profit that collaborates with collegiate athletes to deliver free running clubs for kids with autism; recruited MIT student-athlete coaches; organized coach training session(s) with Boston-area autism specialist
2017 - 2020	MIT Student Athlete Advisory Committee – Provided input and review on policies governing NCAA student-athletes

Teaching Experience

2022	Biology of the Cell (BIOL 112) – Course Coordinator: Dr. Karen Smith - Led two weekly tutorial sections of 50 students each to revisit key learning goals, designed review questions, graded assignments and exams
2021	Molecular Genetics (BIOL 336) – Professor Craig Berezowsky - Led two weekly sections of 50 students each, facilitated group problem solving, developed/modified exam questions, graded assignments and exams

Additional Honors / Experience

2024	U.S. Olympic Team Trials Qualifier (track & field)
2022	Leadership Team Member – UBC Track & Field NAIA National Champion (team, individual)
2021	Athlete support (pace-setter) at the Canadian Olympic & Paralympic Team Trials
2019	NCAA Elite 90 Recipient
2016-2020	MIT Cross Country / Track & Field 4 x Academic All-American 3 x NCAA DIII All-American