

## Britney Sekulovski

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## Academic Background

### Master of Science in Psychology (Cognitive & Behavioural Neuroscience)

Wilfrid Laurier University, Waterloo, ON | 2023 – Present

- Thesis: *The Effects of Environmental Uncertainty on Social Behavior in Zebrafish*
- Advisor: Dr. Noam Miller

### Honours Bachelor of Arts in Psychology (Research Specialist, Minor in Biology)

Wilfrid Laurier University, Waterloo, ON | 2017 – 2022

- Thesis: *Collective Decision-Making in Zebrafish*
  - Graduated on the Faculty of Science Dean's Honour Roll
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## Publications

### Preprints

- Sekulovski, B., & Miller, N. (2024). Mechanisms of social behavior in the anti-social blind cavefish (*Astyanax mexicanus*). Preprint available at <https://doi.org/10.1101/2024.11.30.626194>. Currently under review at *Proceedings of the Royal Society B: Biological Sciences*.

### Manuscripts in Preparation

- Sekulovski, B., & Miller, N. (In preparation). The effect of environmental uncertainty on social behavior in zebrafish (*Danio rerio*).
  - Soref, L., Sekulovski, B., & Miller, N. (In preparation). Mind Your Manners: Social Feeding Behaviors in Zebrafish (*Danio rerio*).
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## Conference Presentations

- Sekulovski, B., & Miller, N. (2024, July). Can't or won't? Investigating the behavioral mechanisms of schooling in blind cavefish. Poster presented at the *Animal Behavior Society Conference*, Western University, London, ON.
- Miller, N., & Sekulovski, B. (2023, April). Losing my mind: Loss of unused cognitive skills in blind cavefish. Oral presentation at the *Comparative Cognition Society Conference*, Florida, USA.
- Sekulovski, B., & Miller, N. (2022, March). The blind avoiding the blind: Schooling behavior in zebrafish and blind cavefish. Poster presented at the *Comparative Cognition Society Conference*, Virtual Conference.

- Sekulovski, B., & Miller, N. (2022, April). Collective decision-making in zebrafish. Poster presented at the *Undergraduate Thesis Poster Conference*, Wilfrid Laurier University, Waterloo, ON.
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## Research Experience

### Graduate Thesis

Collective Cognition Lab, Wilfrid Laurier University | 2023 – Present

- Conducted a study on zebrafish to investigate how environmental uncertainty influences social behaviour, decision-making, memory, and personality plasticity.
- Designed and implemented behavioural assays to measure schooling, social learning, conformity, boldness, sociability, stress, and social recognition.
- Extracted and analyzed over 260 hours of video recordings using custom Python and R scripts.
- Found that fish from the stable environmental condition displayed reduced sociality during personality assays compared to pre-experiment results and fish from the unstable environmental condition.
- Identified increased cohesion during schooling assays in fish from the unstable condition compared to those in the stable condition.
- Discovered that females in the stable condition utilized social information for decision-making, whereas fish from unstable conditions (both sexes) did not.
- Paper is currently in preparation.

### Editorial Assistant

Routledge | 2022

- Contributed to manuscript preparation and literature review for upcoming publications in *Routledge Research in Comparative Cognition* book series, Edited by Dr. Noam Miller and Dr. M. Ali Qadri.

### Peer Reviewer

*Behavioural Brain Research* | 2022

- Evaluated and critiqued research manuscript submissions for *Behavioural Brain Research*.

### Undergraduate Research Assistant

Collective Cognition Lab, Wilfrid Laurier University | 2019 – 2022

- Maintained animal welfare and contributed to data collection for studies across various species.
- Assisted in conducting multiple behavioural experiments, including predator avoidance, pharmaceutical effects, environmental enrichment, and personality in zebrafish; self-recognition in garter snakes and pythons; and social dynamics in quail.
- Provided coding assistance for cultural transmission experiments in rats as well as aggregation and personality studies in garter snakes and pythons.

## Independent Research Projects

Wilfrid Laurier University

- **Undergraduate Honours Thesis** | 2022
  - Conducted experiments on zebrafish decision-making preferences, focusing on majority opinion vs. recent social information.
  - Designed a Y-Maze experiment using custom zebrafish models as social stimuli.
- **Directed Studies: *Social Behavior in Blind Cavefish (PS490I)*** | 2020
  - Conducted studies on the social behavior of blind cavefish, including comparative analysis with the sighted morphs and zebrafish.
  - Administered neuropeptides, such as isotocin and vasotocin, to investigate their influence on social interactions and developed theoretical models for further comparative analysis.
  - Manuscript is currently under review at *Proceedings of the Royal Society B: Biological Sciences*.
- **Directed Studies: *Object Recognition in Blind Cavefish (PS490V)*** | 2020
  - Designed and conducted experiments to assess spatial memory and object recognition abilities in blind cavefish.
  - Implemented a Y-Maze reversal learning paradigm to evaluate cognitive flexibility and adaptability, with a focus on non-visual sensory processing.

## Course-Based Research Projects

Wilfrid Laurier University

- *Research in Learning (PS361)* | 2021
  - Investigated cognitive differences in brown-headed cowbirds, focusing on contrafreeloading, social learning, and deception.
  - Found that birds with better foraging and nest prospecting abilities preferred contrafreeloading (working for food rather than taking freely available food) in a group setting, but not when isolated.
  - Found that birds with lower cognitive abilities contrafreeloaded more when isolated after group testing, indicating prior social learning and potential deception by higher cognition birds.
- *Animal Behavior (BI308)* | 2021
  - Observed aggression patterns during the breeding season in fruit bats at *Lubee Bat Conservancy*
  - Analyzed data on social behavior using BORIS for data collection.
- *Behavioral Neuroscience Research (PS363)* | 2019
  - Investigated neural activation in fear-conditioned rats, preparing coronal brain sections and quantifying c-Fos expression.

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## Honors & Awards

- Faculty of Science Dean's Honour Roll | 2022
- NSERC Undergraduate Student Research Award (USRA) | 2021, 2022 (\$6,000 CAD each)

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## Teaching & Mentorship

### Teaching Assistant

Wilfrid Laurier University

- *Social Psychology (PS270)* | 2024
- *Behavioral Neuroscience (PS263)* | 2024
- *Introduction to Learning (PS261)* | 2023, 2024
- *Sex, Evolution, and Behavior (PS269)* | 2023

### Guest Lecturer

Wilfrid Laurier University

- *Introduction to Learning (PS261)* | 2024
  - Delivered a lecture on *Social Learning in Animals* to 250 undergraduate students.
  - Covered core concepts like social cognition, observational conditioning, mate choice copying, food preference transmission, and cultural transmission.

### Undergraduate Thesis Co-Supervisor

Collective Cognition Lab, Wilfrid Laurier University | 2023 – 2024

- Assisted Dr. Noam Miller in supervising an undergraduate thesis on “The Social Effects of Feeding Behaviour in Zebrafish,” providing mentorship that enhanced the student’s research and presentation skills.

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## Professional & Volunteer Experience

### Science Blogger

*Behavior with Britney (@BehaviorwithB)* on X | 2024 – Present

- Writes daily posts for a science communication microblog, transforming complex behavioral science research into engaging and accessible summaries for a broad audience.

### Dog Rescue Volunteer

Hobo Haven Rescue | 2022 – Present

- Rehabilitates animals recovering from long-term abuse, gaining practical experience in animal learning, behavioral plasticity, and the influence of environment on behavior.

### Team CO3

Comparative Cognition Society Conference | 2023

- Managed conference operations, including registration, coordinating speaker sessions, and ensuring smooth execution of all talks and events.

### Psychology Open House Volunteer

Wilfrid Laurier University | 2019, 2023

- Provided information about academic programs and research opportunities to prospective students, enhancing communication skills and deepening knowledge of university research initiatives.

### **Bartender/Server**

IDarts Waterloo | 2022 – 2023

- Developed strong communication and multitasking skills while serving customers in a fast-paced environment.

### **Retail Sales Associate**

Creature Comfort Pet Emporium | 2022

- Advised customers on pet nutrition, care, and behavior, applying knowledge of animal needs to promote health and well-being.

### **Youth in Food Systems Volunteer**

Seeds of Diversity Canada | 2022

- Created and delivered interactive presentations for youth groups, focusing on environmental conservation and sustainable food systems to inspire action.

### **Vice President**

Laurier Women in Neuroscience (WiN) | 2021 – 2022

- Organized events promoting neuroscience research and fostering mentorship opportunities for women in STEM.
- Collaborated with scientists and students to support networking and professional development initiatives.

### **Animal Care and Therapy Volunteer**

KW Humane Society | 2019 – 2021

- Delivered care and enrichment activities to improve animal welfare and behavior, deepening understanding of the impact of enrichment on behavior and health.

### **Dementia Care Volunteer**

Luther Village on the Park | 2018 – 2021

- Supported elders with memory impairments through therapeutic activities, gaining hands-on experience in cognitive care and enhancing understanding of memory processes.

### **Member**

Women in Science (WinS) | 2018 – 2021

- Attended weekly meetings to discuss STEM topics and volunteered at events promoting women in science.

### **Camp Counselor**

Pawsitively Pets Kids Camp | 2016 – 2018

- Handled a variety of animals while teaching children aged 4-13 about their behavior.
- Organized daily schedules with engaging hands-on learning activities to foster curiosity.

### **Hostess**

Crabby Joe's | 2017 – 2018

- Developed strong organizational skills by managing reservations, coordinating guest seating, and communicating effectively in a team-oriented environment.

### **Park Ranger Volunteer**

Walkabout Wildlife Park | 2017

- Gained hands-on experience caring for and handling exotic animals, enhancing knowledge of their behavior and needs and strengthening passion for animal welfare and conservation.

### **Barista**

Aroma Espresso Bar | 2016 – 2017

- Built customer service and communication skills by maintaining a friendly, customer-focused approach while preparing food and drinks in a fast-paced environment.

### **Cashier**

Sobeys | 2015 – 2016

- Enhanced precision and accountability by accurately handling financial transactions and recording data.

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## **Professional Memberships**

- Animal Behavior Society (ABS)
- Comparative Cognition Society (CCS)

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## **Certificates**

- TCPS 2: CORE (*Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*)
- WHMIS (GHS) (*Workplace Hazardous Materials Information System - Globally Harmonized System*)
- AODA Integrated Accessibility Training Certificate
- Graduate Teaching Assistantship Training Certificate for *Best Practices in Teaching and Mental Health, Wellness, and a Caring Community*

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## **Skills**

- **Technical Skills:** Proficient in Python, R, Excel, SPSS, JASP, IDTracker, and BORIS.
- **Research Skills:** Expertise in experiment design, behavioral tracking, data analysis, and academic writing.

- **Soft Skills:** Exceptional critical thinking, effective public speaking, collaborative teamwork, and a strong work ethic.
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## References

- **Noam Miller**  
Associate Professor, Department of Psychology & Biology  
Wilfrid Laurier University | [nmiller@wlu.ca](mailto:nmiller@wlu.ca)
- **David White**  
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